

## ANNEX

## AMENDMENTS TO THE INTERNATIONAL CODE FOR THE CONSTRUCTION AND EQUIPMENT OF SHIPS CARRYING LIQUEFIED GASES IN BULK (IGC CODE)

In appendix 2, the existing paragraph 6 of the model form of International Certificate of Fitness for the Carriage of Liquefied Gases in Bulk is replaced with the following:

- "6 That the loading and stability information booklet required by paragraph 2.2.5 of the Code has been supplied to the ship in an approved form.
- 7 That the ship shall be loaded:
- .1<sup>\*</sup> only in accordance with loading conditions verified compliant with intact and damage stability requirements using the approved stability instrument fitted in accordance with paragraph 2.2.6 of the Code;
- .2<sup>\*</sup> where a dispensation permitted by paragraph 2.2.7 of the Code is granted and the approved stability instrument required by paragraph 2.2.6 of the Code is not fitted, loading shall be made in accordance with one or more of the following approved methods:
- .i<sup>\*</sup> in accordance with the loading conditions provided in the approved loading and stability information booklet referred to in 6 above; or
- .ii<sup>\*</sup> in accordance with loading conditions verified remotely using an approved means; or
- .iii<sup>\*</sup> in accordance with a loading condition which lies within an approved range of conditions defined in the approved loading and stability information booklet referred to in 6 above; or
- .iv<sup>\*</sup> in accordance with a loading condition verified using approved critical KG/GM data defined in the approved loading and stability information booklet referred to in 6 above; and
- .3<sup>\*</sup> in accordance with the loading limitations appended to this Certificate.

Where it is required to load the ship other than in accordance with the above instruction, then the necessary calculations to justify the proposed loading conditions shall be communicated to the certifying Administration who may authorize in writing the adoption of the proposed loading condition."

\* Delete as appropriate.

\*\* Instead of being incorporated in the Certificate, this text may be appended to the Certificate, if duly signed and stamped."

## 第 7/2022 號行政長官公告

## Aviso do Chefe do Executivo n.º 7/2022

國際海事組織海上安全委員會於二零一五年六月十一日透過第MSC.393(95)號決議通過了《國際海運固體散裝貨物規則》(《固體散貨規則》)修正案,該修正案已於二零一七年一月一日在國際法律秩序上生效,包括對澳門特別行政區生效;

基於此,行政長官根據第3/1999號法律《法規的公佈與格式》第五條(一)項和第六條第一款的規定,命令公佈國際海事組織海上安全委員會透過第MSC.393(95)號決議通過的上指修正案的中文和英文正式文本。

Considerando que, em 11 de Junho de 2015, o Comité de Segurança Marítima da Organização Marítima Internacional (OMI), através da resolução MSC.393(95), adoptou emendas ao Código Marítimo Internacional de Cargas Sólidas a Granel (Código IMSBC), e que tais emendas entraram em vigor na ordem jurídica internacional, incluindo a Região Administrativa Especial de Macau, em 1 de Janeiro de 2017;

O Chefe do Executivo manda publicar, nos termos da alínea 1) do artigo 5.º e do n.º 1 do artigo 6.º da Lei n.º 3/1999 (Publicação e formulário dos diplomas), as referidas emendas adoptadas pelo Comité de Segurança Marítima da OMI através da resolução MSC.393(95), nos seus textos autênticos em línguas chinesa e inglesa.

《固體散貨規則》已透過第31/2016號行政長官公告公佈於二零一六年五月六日第十八期《澳門特別行政區公報》第二組第二副刊。

二零二二年二月八日發佈。

行政長官 賀一誠

O Código IMSBC encontra-se publicado no 2.º Suplemento do *Boletim Oficial da Região Administrativa Especial de Macau*, II Série, n.º 18, de 6 de Maio de 2016, através do Aviso do Chefe do Executivo n.º 31/2016.

Promulgado em 8 de Fevereiro de 2022.

O Chefe do Executivo, *Ho Iat Seng*.

## 第 MSC.393 (95) 號決議

(2015 年 6 月 11 日通過)

### 《國際海運固體散裝貨物規則》

### (《固體散貨規則》) 修正案

海上安全委員會，

憶及《國際海事組織公約》關於本委員會職能的第二十八條第(二)款，

注意到本委員會以第 MSC.268 (85) 號決議通過的《國際海運固體散裝貨物規則》(《固體散貨規則》) 已根據《1974 年國際海上人命安全公約》(《公約》) 第 VI 章具有強制性，

還注意到關於《固體散貨規則》修正程序的《公約》第 VIII (b) 條和第 VII/1.1 條款，

在其第 95 屆會議上，審議了根據《公約》第 VIII (b) (i) 條所提交並散發的《固體散貨規則》修正案，

1 根據《公約》第 VIII (b) (iv) 條，通過《固體散貨規則》修正案，其文本見本決議的附件；

2 根據《公約》第 VIII (b) (vi) (2) (bb) 條，決定上述修正案將在 2016 年 7 月 1 日視為已被接受，除非在該日期之前，有超過三分之一的《公約》締約國政府或其合計商船隊佔世界商船總噸位不少於 50% 的締約國政府表示反對該修正案；

3 請《公約》締約國政府注意，根據《公約》第 VIII (b) (vii) (2) 條，該修正案在按照上述第 2 段被接受後，將於 2017 年 1 月 1 日生效；

- 4 同意《公約》締約國政府在自願基礎上自 2016 年 1 月 1 日起全部或部分實施上述修正案；
- 5 要求秘書長本着《公約》第 VIII (b) (v) 條，向《公約》所有締約國政府發送本決議及附件中修正案文本的核證無誤副本；
- 6 還要求秘書長向本組織會員國中所有非《公約》締約國政府發送本決議及其附件。

## 附件

# 國際海運固體散裝貨物規則（固體散貨規則）修正案

## 目錄

- 1 在最末尾，增加新的條目“附錄 5”如下：

“附錄 5 三種語言的散裝貨物船運名（英文、西班牙文和法文）”

## 第 1 節

### 一般規定

#### 1.4 本規則的適用和實施

- 2 在第 1.4.2 段，按照對應順序插入如下條目：

“第 4.2.2.2 段；”

“第 14 節 防止船舶貨物殘餘物造成污染；”。

- 3 在現有第 1.4.2 段中，“除附錄 1 固體散裝貨物明細表以外的附錄；和”替換為：

“除附錄 1（固體散裝貨物明細表）和附錄 5（三種語言的散裝貨物船運名（英文、西班牙文和法文））以外的附錄；和”

#### 1.6 公約

- 4 在正文第 1.6 段中，第一句話最後的“並全文重述如下”修改為“相關部分重述如下”。

## 第 VI 章

### 貨物的載運

- 5 第 VI 章的標題替換為：



## “貨物和油燃料的載運”

### A 部分

#### 一般規定

#### 第 1 條 適用範圍

6 在第 1 段開頭，增加“除非另有明確規定，”。

#### 1.7 定義

7 在“測試和標準手冊”定義中，將“(ST/SG/AC.10/11/Rev.5/修正案 1)”替換為“(ST/SG/AC.10/11/Rev.5/修正案 2)”。

### 第 3 節

#### 人員與船舶安全

#### 3.1 一般要求

8 在現有第 3.1.1 段之後，插入新的第 3.1.2 段如下：

“3.1.2 以船舶內部安裝傳送帶系統為特徵的自卸式散貨船的貨物作業區域，其船上日常操作性火災安全風險評估須由船員執行。還應適當考慮在所有預期操作條件下和對所有貨物的防火，以及探火系統，火災的控制和抑制的有效操作。火災安全風險評估須在船舶安全管理體系（SMS）中詳細列明，並包括推薦的時間間隔以提供定期評估。”

現有第 3.1.2 段重新編號為第 3.1.3 段。

### 第 4 節

#### 評定貨物的安全適運性

#### 4.2 提供信息

9 現有第 4.2.2 段重新編號為“4.2.2.1”，並加入新的第“4.2.2.2”段：

“4.2.2.2 貨物信息須包括貨物是否對海洋環境有害。”

10 在第 4.2.3 段中，在適用於固體散裝貨物的“貨物信息表”中，在描述貨物組別的一行之後，插入如下幾行：

“

根據《防污公約》附則 V 分類

對海洋環境有害

對海洋環境無害

”

## 第 7 節

### 易流態化貨物

#### 7.3 易流態化貨物規定

##### 7.3.1 概述

11 現有第 7.3.1.1 至 7.3.1.4 段替換為：

“7.3.1.1 精礦或其他易流態化的貨物須在其水分含量低於其 TML 時才允許裝運。儘管有此規定，某些貨物在其水分含量超過 TML 時，可由第 7.3.2 段中詳述的專門建造或裝有專門設備以限制貨物位移的船舶裝運。

7.3.1.2 儘管有本規則第 1.4 節的規定，本規則第 4.2.2.9，4.2.2.10，4.3.2 至 4.3.5，4.5，4.6 和 8 節的要求不適用於使用第 7.3.2 段中詳述的專門建造或裝有專門設備以限制貨物位移的船舶裝運的易流態化固體散裝貨物，或者第 7.3.3 段詳述的為乾粉貨物專門建造的船舶上的貨物。

7.3.1.3 除罐裝或類似包裝的貨物外，不得將含有液體的貨物

配裝在同一貨物處所的易流態化固體散裝貨物的上部或與之相鄰。

7.3.1.4 在航行途中須採取充分的措施，以防止液體流入載有固體散裝貨物的貨物處所。

7.3.1.5 船長須注意，當船舶在海上時，用水冷卻這類貨物會產生危險。進水可能會使這類貨物的水分含量極易達到流動狀態。在必要時，須適當考慮到以噴霧的方式用水最為有效。”

### 7.3.2 專門建造或裝有專門設備的貨船

12 現有第 7.3.2 小節替換為：

#### “7.3.2 為限制貨物位移而專門建造或裝有專門設備的貨船

7.3.2.1 為限制貨物位移而專門建造的貨船須設有永久性結構限界，其佈置可將貨物的位移限制在允許的範圍內。這類船舶須持有主管機關批准的證明。

7.3.2.2 為限制貨物位移而安裝有專門設備的貨船須安裝專門設計的可拆卸的分隔，以將貨物的移動限制在允許的範圍內。裝有專門設備的船舶須符合下列條件：

- .1 這種專門佈置的設計和安裝，須不僅能充分抵禦高密度散裝貨物流動所產生的強大衝擊力，而且能滿足將貨物在艙內流動所產生的潛在橫傾力矩減少到允許的安全水平內的要求。滿足這些要求的防移分隔不得用木材製作。
- .2 船舶結構中圍閉這種貨物的構造必要時須加強。
- .3 專門佈置的平面圖及設計所基於的穩性條件的細節，須經主管機關批准。這種船舶須持有經主管機關批准的證明。

7.3.2.3 向主管機關申請批准時提交的資料須包括：

- .1 有關結構圖，包括縱、橫剖面圖在內；
- .2 穩性計算書，其中應考慮到裝載設備及貨物的可能移動，並註明艙內貨物和液體以及易流態化貨物的分佈；和
- .3 有助於主管機關評估所提交資料的其他信息。”

13 新增第 7.3.3 小節如下：

“7.3.3 為乾粉類貨物特別建造的貨船

7.3.3.1 為乾粉類貨物特別建造的貨船須設計和建造為：

- .1 只運輸乾粉類貨物，和
- .2 借助使用氣動設備的封閉系統進行貨物操作，防止貨物暴露於空氣中。

7.3.3.2 此類船舶須持有主管機關認可的證明。”

## 第 8 節

### 易流態化貨物的測定程序

#### 8.1 概述

14 在第 8.1 段末尾，刪除“除非由專門建造或裝有專門設備的船舶載運這種貨物”等字。

## 第 9 節

### 具有化學危險性的貨物

#### 9.2.3 僅在散裝時具有危險的物質（MHB）

##### 9.2.3.1 概述

15 在現有第 9.2.3.1.3 段後新增第 9.2.3.1.4 和 9.2.3.1.5 段如下：

“9.2.3.1.4 雖然儘可能準確地定義化學危險性，以建立 MHB 類的一致分類標準，但如果人的經驗或其他因素表明需要考慮到化學危險性，則仍須予以考慮。如已經認識到與第 9.2.3.2 到 9.2.3.7 段描述的化學危險性（其他危險（OH））有別，須對其做適當記錄，並附理由。其他危險性應列入明細表的“危險性”部分。

9.2.3.1.5 分類為 MHB 的貨物，在每個明細表性質表中的“類別”欄裏的 MHB 分類須有一個標誌參照符號。如果一種物質具有下面定義的一種或幾種化學危險性，“類別”中須包括對每一種危險性的標誌參照符號。下表列出了標誌參照符號的縮寫：

化學危險性	標誌參照符號
易燃固體	CB
自熱固體	SH
遇濕放出可燃氣體的固體	WF
遇濕放出有毒氣體的固體	WT
有毒固體	TX
腐蝕性固體	CR
其他危險性	OH

”

修正第 9.2.3 小節的標題如下：

“9.2.3.2 易燃固體：MHB（CB）

9.2.3.3 自熱固體：MHB（SH）

9.2.3.4 遇濕放出易燃氣體的固體物質：MHB（WF）

9.2.3.5 遇濕放出有毒氣體的固體：MHB（WT）

9.2.3.6 有毒固體：MHB（TX）

9.2.3.7 腐蝕性固體：MHB（CR）”

9.2.3.7 腐蝕性固體

16 在第 9.2.3.7.3 段中，以參考條目“ISO 3574:1999”替換“ISO 3574:199”。

9.3 積載與隔離要求

9.3.3 具有化學危險的散裝物質與包裝危險貨物間的隔離

17 現有第 9.3.3.1 段中表格前的第二段，編為“9.3.3.2”。

## 第 13 節

### 相關信息和建議的參考條目

#### 13.1 概述

18 在第 13.1 段中，在“國際海事組織文書”之後插入“和其他國際標準（例如 ISO，IEC）”。

#### 13.2 參考條目清單

19 在第 13.2 段中，第一句“國際海事組織相關文書”之後插入“或標準”，在第三句“國際海事組織相關文書”之後插入“或參照標準”。

20 在表各抬頭“國際海事組織相關文書的參考條目（2）”欄中，在“國際海事組織相關文書”之後插入“或標準”。

#### 13.2.3 滅火佈置

21 在表格的第 13.2.3 節中，插入新的第二行：

“

B 組概述	《消防安全系統》規則第 5 章	固定式氣體火災探測系統
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”

而且，在表格的第 13.2.3 節中，“A、B 和 C 組”一行的“國際海事組織相關文書的參考條目（2）”欄中的內容替換為“第 MSC.1/Circ.1395/Rev.2 號通函”，“條目（3）”欄中的內容替換為“可免除固定滅火系統或使用固定氣體滅火系統無效的固體散裝貨物清單”。

#### 13.2.4 通風

22 在表格的第 13.2.4 節中，插入新的三行：

“

B 組概述	MSC.1/Circ.1434	SOLAS II-2/19.3.4 的統一解釋
B 組概述	MSC.1/Circ.1120	SOLAS 的統一解釋，包括 II-2/19.3.2、19.3.4 和 19.3.4.2
B 組概述	IEC 60092-506	在爆炸氣體中儀器安全的電氣標準

”

#### 13.2.6 氣體探測

23 在表格的第 13.2.6 節中，“國際海事組織相關文書的參考條目（2）”一欄中，“第 3 節”替換為“，經第 MSC.1/Circ.1396 號通函修正”），

並在該節的最後，插入新的一行：

“

概述	IEC 60092-506	可在爆炸氣體中安全使用的設備的電氣標準
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”

#### 13.2.10 隔離



24 在表格第 13.2.10 節中，插入新的一行：

“

B 組	IEC 60092-352	電纜穿過邊界的標準
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”

### 13.2.12 進入圍閉處所

25 在表格的第 13.2.12 節中，“國際海事組織相關文書的參考條目（2）”一欄修改為“第 A.1050（27）號決議，2011 年 11 月 30 日”，在“題目（3）”欄修改為“經修訂的關於進入船上圍閉所處的建議書”。

### 13.2.13 避免過大應力

26 在表格第 13.2.13 節中，在該節末尾，插入新的兩行：

“

2.1.2	經修正的第 A.862(20) 號決議	散貨船安全裝卸貨實用規則(BLU 規則)
2.1.2	MSC.1/Circ.1357	散貨船安全裝載附加注意事項

”

27 增加新的“第 14 節”，文字如下：

## “第 14 節

### 防止船舶貨物殘餘物污染

14.1 本節的規定旨在參照《2012 年防污公約附則 V 實施導則》（經修正的第 MEPC.219（63）號決議）（《導則》）管理固體散裝貨物殘餘物。根據《防污公約》附則 V，對固體散裝貨物殘餘物的管理主要基於固體散裝貨物對海洋環境有害（HME）或無害（non-HME）的分類。對一種固體散裝貨物作出有害或者無害分類和聲明的責任，按照導則第 3.4 節，在託運人。本節提供的信息的目的是為《固體散貨規則》的使用者

提供幫助。

14.2 該導則旨在為執行《防污公約》附則 V 的規定提供幫助。該導則與固體散裝貨物殘餘物相關的文本重複如下。該導則在此版本的《固體散貨規則》通過後可能被修正，應參照該導則的最新版本。

## “2012 年防污公約附則 V 實施導則

### 序言

(省略)

### 1 引言

1.1 經修訂的《防污公約》附則 V 的生效日期為 2013 年 1 月 1 日，除非附則明確允許，禁止向海洋排放所有類型垃圾。本導則的制定考慮到經修正的《國際防止船舶造成污染公約》（《防污公約》）附則 V 中列明的條款。本導則的目的是為政府、船東、船舶經營人、船員、貨主、港口接收設施經營人和設備製造商提供指導。本導則共有 6 個部分，為政府部門制定計劃提供一般性框架。

- 引言；
- 垃圾管理；
- 固體散裝貨物殘餘物管理；
- 培訓、教育和信息；
- 港口垃圾接收設施；和
- 促進全面符合《防污公約》附則 V。

1.2 根據經修訂的《防污公約》附則 V，除《防污公約》附則 V 第 3、4、5 和 6 條特別規定外，禁止排放一切垃圾。《防污公約》附則 V 改變了可以根據垃圾的特性在距海岸規定距離排放的以往假定。第 7 條規定了緊急和非常規情況下的例外。總體上，排放食品廢棄物、經認定的貨

物殘餘物、動物屍體、洗艙水中夾帶的經認定的洗滌劑和添加劑和貨物殘餘物等對海洋環境無害的垃圾是受限制的。建議船舶使用港口接收設施作為排放所有垃圾的主要方法。

1.3 認識到《防污公約》附則 V 的條款繼續限制垃圾排入海，並要求船舶對垃圾進行管理，而且垃圾管理技術也在持續發展，因此建議政府和組織持續收集資料並定期審議本導則。

1.4 (省略)

1.5 (省略)

## 1.6 定義

(省略)

## 1.7 適用範圍

1.7.1 本節澄清了哪些物質在《防污公約》附則 V 規定下應或不應被認為是垃圾。

1.7.2 (省略)

1.7.3 (省略)

1.7.4 洗艙水中包含的清潔劑和添加劑以及甲板和外部表面清洗水雖被視作“操作性廢棄物”並按照附則 V 被視作“垃圾”，但只要其對海洋環境無害，這些清潔劑和添加劑可排入海。

1.7.5 洗滌劑或添加劑被視作對海洋環境無害，如果其：

- .1 按照《防污公約》附則 III 中的標準，不是“有害物質”；和
- .2 不包含已知的任何致癌、誘變或生殖毒性（CMR）成分。

1.7.6 船舶記錄應包含洗滌劑或添加劑生產商提供的產品符合對海洋環境無害標準的證據。為確保符合性，產品提供方簽字並標註日期的關於達到無害標準的聲明適合用於船舶記錄。這可以是安全數據表的一部分

或是一份單獨的檔，但這由相關生產商決定。

1.7.7 (省略)

1.7.8 (省略)

## 2 垃圾管理

### 2.1 廢棄物最少化

2.1.1 所有船東和船舶經營人應儘量減少帶上船並可能成為垃圾的物質。船舶特定垃圾減少程序應納入垃圾管理計劃。建議製造商、貨主、港口和裝卸碼頭、船東和船舶經營人和政府考慮對與船舶供應、食物和貨物相關的垃圾進行必要的管理以儘量減少所有形式垃圾的產生。

2.1.2 (省略)

2.1.3 (省略)

2.1.4 (省略)

### 2.2 魚具

(省略)

### 2.3 船上垃圾處理（收集、加工處理、儲存、排放）

2.3.1 《防污公約》附則 V 第 3 條規定禁止將垃圾排放入海，但允許有限的例外情況，概述見表 1。在特定條件下，允許視為對海洋環境無害的食品廢棄物、動物屍體、洗艙水以及甲板和外表面沖洗水中包含的清潔劑和添加劑以及貨物殘餘物排放入海。

表 1 - 《防污公約》附則 V 第 4、5 和 6 條規定的  
排放垃圾入海所受限制的概要（部分省略）

（註：表 1 擬作為概要參考。以《防污公約》附則 V 的規定而非表 1 為準。）

垃圾類型 <sup>1</sup>	除平台外的所有船舶 <sup>4</sup>		距最近陸地超過 12nm 的海上平台和 停靠這種平台或與其 相距在 500m 以內的 船舶 <sup>4</sup> 第 5 條
	在特殊區域外 第 4 條 (與最近陸地的距離)	在特殊區域內 第 6 條 (與最近陸地或最近冰 架的距離)	
沖洗水中未包含的 貨物殘餘 <sup>5,6</sup>	≥12 nm，在航途中並儘 可能遠	禁止排放	禁止排放
沖洗水中包含的貨 物殘餘 <sup>5,6</sup>		≥12 nm，在航途中並儘 可能遠（按照第 6.1.2 條中的條件）	
洗艙水中包含的清 潔劑和添加劑 <sup>6</sup>	允許排放	≥12 nm，在航途中並儘 可能遠（按照第 6.1.2 條中的條件）	禁止排放
甲板和外表面洗滌 水中的清潔劑和添 加劑 <sup>6</sup>		允許排放	

<sup>1</sup> 當垃圾與其他禁止排放或有不同排放要求的有害物質混合或受到其污染時，則適用更嚴格的要求。

<sup>4</sup> （省略）

<sup>5</sup> 貨物殘餘係指那些使用常規卸貨方法不能回收的貨物殘餘。

<sup>6</sup> 這些物質必須對海洋環境無害。

2.3.2 （省略）

2.3.3 （省略）

2.3.4 （省略）

2.4 收集

(省略)

## **2.5 處理**

(省略)

## **2.6 儲存**

(省略)

## **2.7 排放**

(省略)

## **2.8 處理垃圾的船上設備**

(省略)

## **2.9 磨碎或粉碎**

(省略)

## **2.10 壓縮**

(省略)

## **2.11 焚燒**

(省略)

## **2.12 動物屍體的處理**

(省略)

## **2.13 排放作為貨物載運的魚類**

(省略)

## **3 固體散裝貨物殘餘物的管理**

3.1 貨物殘餘物包括在附則 V 第 1.9 條的垃圾定義內，可按照第 4.1.3 條和第 6.1.2 條排放。但是，如果貨艙艙底水中的貨物物質對海洋環境無

害且艙底水從載貨的貨艙通過船舶艙底水固定式管系泄水系統排放，則該貨物材料不應作為貨物殘餘物處理。

3.2 如果貨物殘餘物是按照聯合國《全球化學品分類和標籤協調系統》（UN GHS）標準<sup>1</sup>分類的固體散裝物質的殘餘物並達到下列參數，則視作對海洋環境有害並受經修訂的《防污公約》附則 V 第 4.1.3 條和第 6.1.2.1 條的約束：

- .1 急性水生毒性第 1 類；和/或
- .2 慢性水生毒性第 1 類或第 2 類；和/或
- .3 致癌性<sup>2</sup>第 1A 類或第 1B 類，並不能快速降解並有高生物體內積累；和/或
- .4 誘變性<sup>2</sup>第 1A 類或第 1B 類，並不能快速降解並有高生物體內積累；和/或
- .5 生殖毒性<sup>2</sup>第 1A 類或第 1B 類，並不能快速降解並有高生物體內積累；和/或
- .6 重複暴露特定靶器官毒性<sup>2</sup>第 1 類，並不能快速降解並有高生物體內積累；和/或
- .7 包含合成聚合物、橡膠、塑料製品或塑料原料顆粒或由其組成的固體散裝貨物（這包括切碎、磨碎、剝碎或浸軟的材料或類似材料）。

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註：

- 1) 這些標準基於經修訂的 UN GHS 第 4 版（2011 年）。對於 UN GHS 中的具體產品（例如金屬和無機金屬化合物）已有指導，附件 9 和 10 對於正確解釋這些標準和分類十分重要的，應予以遵循。
- 2) 產品按口腔和皮膚危害分為致癌性、誘變性、生殖毒性或重複暴露特定靶器官毒



性，或在危害聲明中不陳述暴露方式。

3.3 對海洋環境有害的貨物殘餘物可要求通常不由接收設施提供的特殊處理。接收這種貨物的港口和裝卸碼頭應有足夠的接收設施接收所有相關殘餘物，包括包含在洗滌水中的殘餘物。

3.4 固體散裝貨物應由發貨人分類並聲明其是否對海洋環境有害。這種聲明應包括在《固體散貨規則》第 4.2 節中要求的信息內。

3.5 港口、裝卸碼頭和船舶經營人應考慮貨物裝卸和船上處理的實際操作以儘量減少貨物殘餘物的產生。無效的裝、卸和船上操作產生貨物殘餘物。應考慮通過以下方法減少此類垃圾的產生：

- .1 確保船舶適合擬載運的貨物並適合使用常規的卸貨方法卸載此種貨物；
- .2 儘可能有效地卸貨，採用所有適當的安全預防措施防止人身傷害或船舶和設備損壞，並避免或儘量減少貨物殘餘物；和
- .3 在傳送操作時，通過在船上和碼頭區仔細控制貨物傳送操作，將貨物溢出降到最低。這應包括採取有效的措施以在傳送操作期間相關船舶和岸基人員之間能即時通信，並在切實可行時，遮蔽傳送設備（例如傳送帶）。由於貨物溢出通常發生在港口，應在裝卸作業完成後，按照貨物處理的方式立即清理乾淨；將其放入預定的貨物處所或適當的卸載保存區域。

3.6 如船長根據從相關港口當局接收到的信息確認位於同一特殊區域內的出發港或目的港無足夠的接收設施，第 6.1.2.3 條所述條件應視作已得到滿足。

3.7 當“出發港”和“下一目的港”是同一港口，《防污公約》附則

V 第 6.1.2 條也適用。在這種情況下排放洗艙水，船舶必須在航行中且排放必須距最近陸地不少於 12 海里。

**4 培訓，教育和信息**

(省略)

**5 港口垃圾接收設施**

(省略)

**6 促進全面符合《防污公約》附則 V**

(省略)”

## 附錄 1

### 各固體散裝貨物明細表

#### 對現有明細表的修正

##### 苜蓿

28 在“苜蓿”明細表中，在“裝載”中第一句話用“本規則”替代“規則”。

##### 氫氧化鋁

29 在“氫氧化鋁”明細表中，在“天氣注意事項”中第一段，刪除“特別建造或配備”。

##### 熟料粉煤灰，濕型

30 在固體散裝貨物運輸名稱中，刪除“濕型”。在“描述”部分，用下文替代第三句中“不溶於水。”：

“此貨物可以分類為濕型，用水取出；和乾型，在乾燥條件下取出。”

並在“天氣注意事項”第一段中，刪除“特別建造或配備”。在參考條目“7.3.2”之後，插入文字“或者滿足第 7.3.3 小節要求的船舶”。

##### 煤

31 在“煤”明細表中，在“天氣注意事項”第一段中，刪除“特別建造或配備”。

##### 煤泥

32 在“天氣注意事項”中的第一款，刪除“特別建造或配備”。

##### 焦炭渣

33 在“天氣注意事項”中的第一款，刪除“特別建造或配備”。

#### 氟石

34 在“天氣注意事項”中的第一款，刪除“特別建造或配備”。

#### 飄塵，濕型

35 在“天氣注意事項”中的第一款，刪除“特別建造或配備”。

#### 鈦鐵礦黏土

36 在“天氣注意事項”中的第一款，刪除“特別建造或配備”。

#### 鈦鐵礦（精選的）

37 在“天氣注意事項”中的第一款，刪除“特別建造或配備”。

#### 鐵礦

38 用下文替代原有的“鐵礦”明細表

#### “鐵礦

本明細表的規定須適用於鐵礦類貨物：

.1 含有以下之一：

.1 少於 10%的顆粒小於 1mm ( $D_{10}>1\text{mm}$ )；或

.2 少於 50%的顆粒小於 10mm ( $D_{50}>10\text{mm}$ )；或

.3 兩者都具備；或

.2 由託運人提供給船長的聲明中根據國際或本國接受的標準程序確定貨物中，鐵礦粉中總葉鐵礦質量為 35%或以上。

#### 描述

鐵礦的顏色從黑灰色到鏽紅色。根據鐵含量從赤鐵礦（高品位礦）到鐵礦石較低商業品級。精礦是不同的貨物（見鐵精礦）。

## 特性

靜止角	密度 (kg/m <sup>3</sup> )	記載因數 (m <sup>3</sup> /t)
不適用	1,250 至 3,500	0.29 至 0.80
尺寸	類別	組別
達 250mm	不適用	C

## 危害性

無特別的危害性。

此貨物為不可燃或具有低火災風險。

鐵礦貨物可能會影響磁羅經。

## 積載和隔離

無特別要求。

## 貨艙清潔程度

無特別要求。

## 天氣注意事項

無特別要求。

## 裝載

按照本規則第 4、5 節中的有關規定進行平艙。當貨物的積載因數等於或小於 0.56m<sup>3</sup>/t 時，除非貨物在內底均勻鋪開以使重量平均分佈，否則內底可能會受力過度。在航行和裝卸期間，須適當注意確保不要把貨物堆起而使內底受力過度。

## 注意事項

在正常情況下，裝載速率可以非常高。在擬定《安全公約》第 VI/7.3 條要求的裝載計劃時，須適當注意壓載操作。艙底污水阱須保持清潔、乾燥並酌情遮蓋以防止貨物進入。

## 通風

無特別要求。

### **載運**

無特別要求。

### **卸貨**

無特別要求。

### **清掃**

無特別要求。”

### **鐵礦球團**

39 在“鐵礦球團”明細表中，在“注意事項”中，刪除“無特別要求”。

### **硫化金屬精礦**

40 在“天氣注意事項”中的第一款，刪除“特別建造或配備”。

### **精礦粉**

41 在“天氣注意事項”中的第一款，刪除“特別建造或配備”。

### **鎳礦**

42 在“天氣注意事項”中的第一款，刪除“特別建造或配備”。

### **草泥**

43 在“裝載”中，以“符合本規則第 7.3.2 小節要求的船舶”替換“特別配備或建造的船舶（見第 7.3.2 小節）”。

### **砂，重礦物**

44 在“天氣注意事項”中的第一款，刪除“特別建造或配備”。

### **木球團**

45 刪除現有的“木球團”明細表。

## 新明細表

46 以字母表順序插入如下新的明細表：

### “氟化鋁

#### 描述

氟化鋁為精細的白色粉末，無味，本身乾燥。此貨物不黏黏。水分含量少於 1%。

#### 特性

靜止角	密度 (kg/m <sup>3</sup> )	記載因數 (m <sup>3</sup> /t)
32°至 35°	1,527	0.65
尺寸	類別	組別
精細粉末	不適用	A

#### 危害性

貨物海運時超過適運水分極限可能流態化。見本規則第 7 和 8 節。

該貨物對眼睛和黏膜有刺激性。與酸接觸，釋放有毒氣體氟化氫。如投入火中，釋放有毒蒸氣氟化氫。該貨物為非易燃或具有低火災危險。

#### 積載和隔離

無特別要求。

#### 貨艙清潔程度

無特別要求。

#### 天氣注意事項

如果貨物未由符合本規則第 7.3.2 小節要求的船舶運輸，須遵守以下規定：

- .1 航行期間須將貨物的含水量保持在適運水分極限以下；
- .2 除非本明細表另有明確規定，不得在降水期間裝卸；



- .3 除非本明細表另有明確規定，在貨物裝卸期間，須關閉裝載或擬裝載該貨物的處所的不在使用中的所有艙蓋；
- .4 如果貨物滿足本規則第 4.3.3 小節中的規定，則可在降水期間裝卸；
- .5 如果貨物處所的全部貨物將在同一港口中卸完，可以在降水期間卸下貨物處所中的貨物。

### **裝載**

按照本規則第 4 和 5 節中的有關規定進行平艙。

### **注意事項**

可能接觸該貨物粉塵的人員須佩戴手套，護目鏡或其他等效的眼睛防塵保護用品和防塵過濾口罩。

### **通風**

無特別要求。

### **載運**

在航行期間，須定期檢查貨物表面的情況。若在航行期間觀察到貨物上面有自由液面或流態貨物，船長須採取適當措施以防止貨物移動和船舶的傾覆危險，並考慮尋求緊急進入避難地。

### **卸貨**

防止粉塵沾染起居處所和設備。

### **清掃**

在用水清洗前應確認甲板和貨物處所的貨物剷除清掃乾淨。”

#### **“非晶硅酸鈉塊**

本明細表須僅適用於氧化硅和氧化鈉（ $\text{SiO}_2/\text{Na}_2\text{O}$ ）的分子比率大於 3.2 的非晶硅酸鈉塊。

**描述**

塊狀，無色到綠色玻璃狀固體。

**特性**

靜止角	密度 (kg/m <sup>3</sup> )	積載因數 (m <sup>3</sup> /t)
不適用	1,100 至 1,500	0.67 至 0.91
尺寸	類別	組別
可達 100mm	MHB (CR)	B

**危害性**

粉塵可能刺激皮膚和眼睛。

該貨物為非易燃或具有低火災危險。貨物吸濕，潮濕結塊。

**積載和隔離**

無特別要求。

**貨艙清潔程度**

根據貨物危險性保持清潔和乾燥。

**天氣注意事項**

此貨物須儘可能保持乾燥。此貨物在降水期間不能裝貨。在貨物裝卸期間，須關閉裝載或擬裝載該貨物的處所的不在使用中的所有艙蓋。

**裝載**

裝載過程中，注意減少粉塵的產生。按照本規則第 4、5 節中的有關規定進行平艙。

**注意事項**

艙底污水阱須保持清潔、乾燥並酌情遮蓋以防止貨物進入。

如果必要，可能暴露於該貨物粉塵的人員須穿戴防護服，護目鏡或其他等效的眼睛防塵保護用品和防塵過濾口罩。

**通風**

載運此貨物的貨物處所在航程中不能進行通風。

### 載運

無特別要求。

### 卸貨

裝載過程中，注意減少粉塵的產生。該貨物吸濕，在卸貨過程中可能結塊懸垂，影響安全。如果貨物硬化，須進行平艙，儘可能減少懸垂。

### 清掃

無特別要求。

### 應急程序

配備專用應急設備 無
應急程序 無 火災時的緊急行動 無 醫療急救 參見經修正的《危險貨物事故醫療急救指南（MFAG）》。

## “硼酸

### 描述

白色自由流動晶體粉末。無味，乾燥，含水不超過 1%。溶於水。

### 特性

靜止角	密度 (kg/m <sup>3</sup> )	積載因數 (m <sup>3</sup> /t)
不適用	544 至 862	1.16 至 1.84
尺寸	類別	組別
精細晶體粉末，乾燥	MHB (TX)	B

### 危害性

吸入可能對鼻子和咽喉產生輕微刺激。可能對皮膚有刺激。可能造成長時間的健康影響。貨物不可燃。

貨物吸潮，遇濕結塊。

### **積載和隔離**

與金屬氫化物和鹼金屬“隔離”

### **貨艙清潔程度**

根據貨物危險性保持清潔和乾燥。

### **天氣注意事項**

此貨物須儘可能保持乾燥。此貨物在降水期間不能裝貨。在貨物裝卸期間，須關閉裝載或擬裝載該貨物的處所的不使用中的所有艙蓋。

### **裝載**

按照本規則第 4、5 節中的有關規定進行平艙。

### **注意事項**

如果必要，可能暴露於該貨物粉塵的人員須穿戴防護服，護目鏡或其他等效的眼睛防塵保護用品和防塵過濾口罩。

### **通風**

無特別要求。

### **載運**

無特別要求。

### **卸貨**

降水期間不能卸貨。

硼酸吸濕，在卸貨過程中可能結塊懸垂，影響安全。如果貨物硬化，須進行平艙，儘可能減少懸垂。

### **清掃**

在清洗之前應徹底清理所有貨物處所。

### 應急程序

<b>配備專用應急設備</b> 無
<b>應急程序</b> 無 <b>火災時的緊急行動</b> 無 <b>醫療急救</b> 參見經修正的《危險貨物事故醫療急救指南（MFAG）》。

### “化學石膏

#### 描述

水合硫酸鈣，冶煉廠、精煉廠和聚合氯化鋁生產過程的產物或副產物。白色或棕色粉末，無味，不溶於水。用於石膏板和膠合劑。

#### 特性

靜止角	密度 (kg/m <sup>3</sup> )	積載因數 (m <sup>3</sup> /t)
不適用	570 至 1,170	0.85 至 1.74
尺寸	類別	組別
40µm 至 1mm	不適用	A

#### 危險性

海運時貨物含水量超過適運水分極限可能流態化。見本規則第 7、第 8 節。該貨物為不可燃或低火災風險。

#### 積載和隔離

無特別要求。

#### 貨艙清潔程度

無特別要求。

## 天氣注意事項

如果貨物未由符合本規則第 7.3.2 小節要求的船舶運輸，須遵守以下規定：

- .1 航行期間須將貨物的含水量保持在適運水分極限以下；
- .2 除非本明細表另有明確規定，不得在降水期間裝卸；
- .3 除非本明細表另有明確規定，在貨物裝卸期間，須關閉裝載或擬裝載該貨物的處所的不在使用中的所有艙蓋；
- .4 如果貨物滿足本規則第 4.3.3 小節中的規定，則可在降水期間裝卸；
- .5 如果貨物處所的全部貨物將在同一港口中卸完，可以在降水期間卸下貨物處所中的貨物。

## 裝載

按照本規則第 4、5 節中的有關規定進行平艙。

## 注意事項

無特別要求。

## 通風

無特別要求。

## 載運

在航行期間，須定期檢查貨物表面的情況。若在航行期間觀察到貨物上面有自由液面或流態貨物，船長須採取適當措施以防止貨物移動和船舶的傾覆危險，並考慮尋求緊急進入避難地。

## 卸貨

無特別要求。

## 清掃

在清除貨物殘留物之前，須剷除和掃淨甲板和貨物處所，因為將此貨物洗淨十分困難。”

### “銅渣

#### 描述

銅冶煉過程的殘餘物。貨物具有高滲透性，水通過空隙迅速流乾。黑色或紅棕色，顆粒狀或塊狀。

#### 特性

靜止角	密度 (kg/m <sup>3</sup> )	積載因數 (m <sup>3</sup> /t)
不適用	1,500 至 2,500	0.40 至 0.67
尺寸	類別	組別
達 10mm	不適用	A

#### 危險性

海運時貨物含水量超過適運水分極限可能流態化。見本規則第 7、第 8 節。該貨物為不可燃或低火災風險。

#### 積載和隔離

無特別要求。

#### 貨艙清潔程度

無特別要求。

#### 天氣注意事項

如果貨物未由符合本規則第 7.3.2 小節要求的船舶運輸，須遵守以下規定：

- .1 航行期間須將貨物的含水量保持在適運水分極限以下；
- .2 除非本明細表另有明確規定，不得在降水期間裝卸；
- .3 除非本明細表另有明確規定，在貨物裝卸期間，須關閉裝載或擬裝載該貨物的處所的不在使用中的所有艙蓋；



- .4 如果貨物滿足本規則第 4.3.3 小節中的規定，則可在降水期間裝卸；
- .5 如果貨物處所的全部貨物將在同一港口中卸完，可以在降水期間卸下貨物處所中的貨物。

### 裝載

此貨物須進行平艙以確保貨堆峰谷高度差不超過船舶型寬的 5%，貨物從艙口到貨堆口均勻的傾斜，在航程中不會產生剪切面塌方。

當貨物的積載因數等於或小於  $0.56\text{m}^3/\text{t}$  時，除非貨物在內底均勻鋪開以使重量平均分佈，否則內底可能會受力過度。在航行和裝卸期間，須適當注意確保勿將貨物堆起而使內底受力過度。

### 注意事項

須採取適當預防措施防止該貨物的粉塵進入機器處所和起居處所。污水阱應予保護防止貨物進入。採取適當措施防止貨物粉塵沾染設備。

如果必要，可能暴露於該貨物粉塵的人員須穿戴防護服，護目鏡或其他等效的眼睛防塵保護用品和防塵過濾口罩。

### 通風

無特別要求。

### 載運

航程中定時清理污水阱中的水。

### 卸貨

無特別要求。

### 清掃

無特別要求。”

### “碎玻璃

### 描述

綠色，棕色或無色玻璃。可能帶有輕微甜味。用於生產新玻璃，玻璃絲和泡沫玻璃。

### 特性

靜止角	密度 (kg/m <sup>3</sup> )	積載因數 (m <sup>3</sup> /t)
不適用	1,060 至 1,330	0.75 至 0.94
尺寸	類別	組別
達 50mm	不適用	C

### 危險性

貨物非易燃或具有低火災風險。

潛在的吸入危害性，在處理，儲存和運輸是碎末對皮膚和眼睛具有刺激性。

處理和儲存過程中有割傷刺傷的潛在風險。

### 積載和隔離

無特別要求。

### 貨艙清潔程度

無特別要求。

### 天氣注意事項

無特別要求。

### 裝載

按照本規則第 4、5 節中的有關規定進行平艙。

### 注意事項

為避免可能的割傷和刺傷，同時避免皮膚、耳朵和眼睛暴露在玻璃粉塵中，進行碎玻璃操作的工人需佩戴長袖套、長褲、手套、工作靴、安全帽、護耳和護目鏡。衣服袖子和褲腿可以用帶子捆紮提供額外的保護。

工作人員可以佩戴一次性防塵面罩避免粉塵刺激。

**通風**

無特別要求。

**載運**

無特別要求。

**卸貨**

無特別要求。

**清掃**

避免產生粉塵的作業。

增濕是有效的粉塵控制手段。”

**“鐵和鋼渣及其混合物**

貨物可能含有對人體有害的物質，例如鎘、鉛、六價鉻、硼和氟。本明細表不適用於符合 9.2.2.5 和 9.2.3.6 規定標準的貨物。

**描述**

貨物主要由煉鐵廠和煉鋼廠的殘渣，以及與以下一種或多種添加物混合的殘渣：水泥，鼓風爐顆粒渣和混凝土碎片。

在運輸前，貨物經過老化和熟化大部分穩定，在日常使用中具有化學穩定性，物理性質例如顆粒尺寸等根據需求予以控制，必要時貨物在室溫下運輸。

貨物不含有煉鐵和煉鋼過程中的產生的兩種渣殘留物，熱鐵渣和熱鋼渣。

鐵和鋼渣在高溫過程中形成玻璃化和結晶化的固體，它是幾種礦物的混合物。

貨物可能含有鐵和鋼渣混合水泥和鼓風爐顆粒渣組成的塊狀。顏色分佈從灰白到黑灰，形態分佈從顆粒、卵石到塊狀。貨物的用途有：修路材料、混凝土骨料、土壤增強劑、民用工程材料、水泥工業原材料和化肥

原材料。

### 特性

靜止角	密度 (kg/m <sup>3</sup> )	積載因數 (m <sup>3</sup> /t)
不適用	1,200 至 3,000	0.33 至 0.83
尺寸	類別	組別
達 100mm	不適用	A

### 危險性

海運時貨物含水量超過適運水分極限可能流態化。見本規則第 7、第 8 節。該貨物為非易燃或低火災風險。

### 積載和隔離

無特別要求。

### 貨艙清潔程度

無特別要求。

### 天氣注意事項

如果貨物未由符合本規則第 7.3.2 小節要求的船舶運輸，須遵守以下規定：

- .1 航行期間須將貨物的含水量保持在適運水分極限以下；
- .2 除非本明細表另有明確規定，不得在降水期間裝卸；
- .3 除非本明細表另有明確規定，在貨物裝卸期間，須關閉裝載或擬裝載該貨物的處所的不在使用中的所有艙蓋；
- .4 如果貨物滿足本規則第 4.3.3 小節中的規定，則可在降水期間裝卸；
- .5 如果貨物處所的全部貨物將在同一港口中卸完，可以在降水期間卸下貨物處所中的貨物。

## 裝載

按照本規則第 4 和 5 節中的有關規定進行平艙。

當貨物的積載因數等於或小於  $0.56\text{m}^3/\text{t}$  時，除非貨物在內底均勻鋪開以使重量平均分佈，否則內底可能會受力過度。在航行和裝卸期間，須適當注意確保勿將貨物堆起而使內底受力過度。

## 注意事項

如果必要，可能接觸該貨物粉塵的人員須佩戴護目鏡或其他等效的眼睛防塵保護用品和防塵過濾口罩。

## 通風

無特別要求。

## 載運

在航行期間，須定期檢查貨物表面的情況。若在航行期間觀察到貨物上面有自由液面或流態貨物，船長須採取適當措施以防止貨物移動和船舶的傾覆危險，並考慮尋求緊急進入避難地。

## 卸貨

無特別要求。

## 清掃

無特別要求。”

### “鐵礦粉

本明細表的規定適用於含有下列物質的鐵礦貨物：

- .1 直徑小於  $1\text{mm}$  ( $D_{10}\leq 1\text{mm}$ ) 的粉狀顆粒佔 10%或以上；  
和
- .2 直徑小於  $10\text{mm}$  ( $D_{50}\leq 10\text{mm}$ ) 的顆粒佔 50%或以上。

儘管有上述規定，按質量計總葉鐵礦含量為 35%或以上的鐵礦粉可以按

照“鐵礦”明細表運輸，託運人應向船長提供依照國際或國家認可標準程序判定的貨物中葉鐵礦含量的聲明。

### 描述

鐵礦粉的顏色呈灰黑色、鏽紅色到黃色不等，且含有不同鐵含量的赤鐵礦、葉鐵礦和磁鐵礦。

鐵精礦是不同的貨物（見“精礦粉”明細表）

### 特性

靜止角	散貨密度 (kg/m <sup>3</sup> )	積載因數 (m <sup>3</sup> /t)
不適用	1500 至 3500	0.29 至 0.67
尺寸	類別	組別
直徑小於 1mm 的粉狀顆粒佔 10%或以上，且直徑小於 10mm 的顆粒佔 50%或以上	不適用	A

### 危險性

該貨物在載運期間如果水分含量超過適運水分極限可能會流態化。見本規則第 7 和 8 節。

該貨物可影響磁羅經。

該貨物為非易燃或具有低火災風險。

### 積載和隔離

無特別要求。

### 貨艙清潔程度

無特別要求。

### 天氣注意事項

如果貨物未由符合本規則第 7.3.2 小節要求的船舶運輸，須遵守以下規定：

- .1 航行期間須將貨物的水分含量保持在適運水分極限以下；
- .2 除非本明細表另有明確規定，不得在降水期間裝卸；
- .3 除非本明細表另有明確規定，在貨物裝卸期間，須關閉裝載或擬裝載該貨物的處所的不在使用中的所有艙蓋；
- .4 如果貨物滿足本規則第 4.3.3 小節中的規定，則可在降水期間裝卸；和
- .5 如果貨物處所的全部貨物將在同一港口中卸完，可以在降水中卸下貨物處所中的貨物。

### **裝載**

按照本規則第 4 和 5 節的有關規定進行平艙。

由於該貨物密度極高，除非貨物在內底均勻鋪開以使重量平均分佈，否則內底可能會受力過度。

### **注意事項**

在正常情況下，該貨物裝載速率非常高。在擬定《安全公約》第 VI/7.3 條要求的裝載計劃時，須適當注意壓載作業。艙底污水阱須清潔、乾燥並適當防護以防止貨物落入。

### **通風**

無特別要求。

### **載運**

貨艙艙底須定期檢查並泵出污水。在航行期間，須定期檢查貨物表面的情況。若在航行期間觀察到貨物上面有自由液面或流態貨物，船長須採取適當措施以防止貨物移動和船舶的傾覆危險，並考慮尋求緊急進入避難地。

### **卸貨**

無特別要求。

**清掃**

沒有特別要求。”

**“工業氧化鐵****描述**

工業氧化鐵是工業用或商用生產三氧化二鐵（鐵（III）氧化物）工廠的產品或副產品。這種材料無味、紅色。

**特性**

靜止角	密度 (kg/m <sup>3</sup> )	積載因數 (m <sup>3</sup> /t)
不適用	1,000	1.0
尺寸	類別	組別
細顆粒	不適用	A

**危險性**

粉塵可能引起皮膚和眼睛刺激。鐵貨物可能影響磁羅經。

此貨物海運時如果超過適運水分極限可能會產生流態化。見本規則第 7 和第 8 節。該貨物為不可燃或具有低火災風險。

**積載和隔離**

無特別要求。

**貨艙清潔程度**

無特別要求。

**天氣注意事項**

如果貨物未由符合本規則第 7.3.2 小節要求的船舶運輸，須遵守以下規定：

- .1 航行期間須將貨物的含水量保持在適運水分極限以下；
- .2 除非本明細表另有明確規定，不得在降水期間裝卸；



- .3 除非本明細表另有明確規定，在貨物裝卸期間，須關閉裝載或擬裝載該貨物的處所的不在使用中的所有艙蓋；
- .4 如果貨物滿足本規則第 4.3.3 小節中的規定，則可在降水期間裝卸；
- .5 如果貨物處所的全部貨物將在同一港口中卸完，可以在降水期間卸下貨物處所中的貨物。

### **裝載**

按照本規則第 4、5 節中的有關規定進行平艙。

### **注意事項**

如果必要，可能暴露於該貨物粉塵的人員須穿戴防護服，護目鏡或其他等效的眼睛防塵保護用品和防塵過濾口罩。

艙底污水阱須保持清潔、乾燥並酌情遮蓋以防止貨物進入。

### **通風**

無特別要求。

### **載運**

在航行期間，須定期檢查貨物表面的情況。若在航行期間觀察到貨物上面有自由液面或流態貨物，船長須採取適當措施以防止貨物移動和船舶的傾覆危險，並考慮尋求緊急進入避難地。

### **卸貨**

無特別要求。

### **清掃**

卸貨後，檢查貨物處所的污水阱和排水口，清理污水阱和排水口中的所有堵塞物。”

### **“燒結鐵**

### **描述**

在 1315°C 至 1482°C 由加熱細碎焦炭、鐵礦、高爐粉塵、煉鋼粉塵、軋屑、其他含鐵物質、石灰石和白雲石形成的熱聚團物質。

### 特性

靜止角	密度 (kg/m <sup>3</sup> )	積載因數 (m <sup>3</sup> /t)
不適用	1,800 至 2,100	0.47 至 0.56
尺寸	類別	組別
達 200mm	不適用	C

### 危險性

此貨物的粉塵細小，可能導致眼和呼吸刺激。該貨物為非易燃或具有低火災風險。

### 積載和隔離

無特別要求。

### 貨艙清潔程度

無特別要求。

### 天氣注意事項

無特別要求

### 裝載

按照本規則第 4、5 節中的有關規定進行平艙。

由於貨物的密度很大，除非貨物在內底均勻鋪開以使重量平均分佈，否則內底可能會受力過度。在航行和裝卸期間，須適當注意確保不要把貨物堆起而使內底受力過度。

### 注意事項

須保護貨物處所的污水阱，防止貨物進入。如果必要，可能暴露於該貨物粉塵的人員須穿戴防護服，護目鏡或其他等效的眼睛防塵保護用品和防塵過濾口罩。

**通風**

無特別要求。

**載運**

在航程中，如有必要，測量污水並泵出。

**卸貨**

無特別要求。

**清掃**

無特別要求。”

**“錳鐵合金渣****描述**

生產錳鐵合金過程產生的副產品。粒狀或塊狀，綠色，棕紅色或灰黑色。水分含量：1.2%到 5.6%。

**特性**

靜止角	密度 (kg/m <sup>3</sup> )	積載因數 (m <sup>3</sup> /t)
不適用	1,480 至 1,935	0.52 至 0.68
尺寸	類別	組別
達 200mm	不適用	C

**危險性**

無特別危害性。

該貨物為非易燃或具有低火災風險。

**積載和隔離**

無特別要求。

**貨艙清潔程度**

無特別要求。

**天氣注意事項**

無特別要求

### 裝載

按照本規則第 4、5 節中的有關規定進行平艙。

當貨物的積載因數等於或小於  $0.56 \text{ m}^3/\text{t}$  時，除非貨物在內底均勻鋪開以使重量平均分佈，否則內底可能會受力過度。在航行和裝卸期間，須適當注意確保不要把貨物堆起而使內底受力過度。

### 注意事項

可能接觸該貨物粉塵的人員須佩戴護目鏡或其他等效的眼睛防塵保護用品和防塵口罩。接觸人員須穿戴防護服。

### 通風

無特別要求。

### 載運

無特別要求。

### 卸貨

無特別要求。

### 清掃

無特別要求。”

### “錳礦粉

本條目規定對錳礦類貨物的的適用須包括兩項：

- .1 10%或以上的顆粒小於 1mm ( $D_{10} \leq 1\text{mm}$ )；和
- .2 50%或以上的顆粒小於 10mm ( $D_{50} \leq 10\text{mm}$ )。

雖然有以上規定，沒有表現出流動水分點（FMP）不易於流態化的錳礦類貨物須作為 C 組貨按照錳礦明細表的規定進行海運。

本明細表適用於易流態化的錳礦貨物。不易流態化的錳礦貨物見錳礦明

細表。

### 描述

錳礦粉呈現彩色，通常從棕色到黑色。其顏色和組成可能由於錳和伴生礦物的存在產生變化，為特重貨物，典型水分含量可以達到質量的 15%。

### 特性

靜止角	密度 (kg/m <sup>3</sup> )	積載因數 (m <sup>3</sup> /t)
不適用	1,450 至 3,200	0.31 至 0.69
尺寸	類別	組別
一般達 15mm，細於 1mm 的超過 10%，細於 10mm 的超過 50%	不適用	A

### 危險性

此貨物海運時如果超過適運水分極限可能會產生流態化。見本規則第 7 和第 8 節。

此貨物粉塵刺激眼和黏膜。

此貨物非為易燃或具有低火災風險。正常條件下使用、儲存和運輸時穩定、不反應。但是，此貨物遇到不相容的材料，例如酸，鹼，氧化和還原劑，可燃。當加熱分解時可產生有毒錳化合物顆粒。

### 積載和隔離

與酸、鹼、氧化和還原物質隔離。

### 貨艙清潔程度

根據貨物危險性保持清潔和乾燥。

### 天氣注意事項

如果貨物未由符合本規則第 7.3.2 小節要求的船舶運輸，須遵守以下規定：

- .1 航行期間須將貨物的含水量保持在適運水分極限以下；
- .2 除非本明細表另有明確規定，不得在降水期間裝卸；
- .3 除非本明細表另有明確規定，在貨物裝卸期間，須關閉裝載或擬裝載該貨物的處所的不在使用中的所有艙蓋；
- .4 如果貨物滿足本規則第 4.3.3 小節中的規定，則可在降水期間裝卸；
- .5 如果貨物處所的全部貨物將在同一港口中卸完，可以在降水期間卸下貨物處所中的貨物。

### **裝載**

按照本規則第 4、5 節中的有關規定進行平艙。

當貨物的積載因數等於或小於  $0.56 \text{ m}^3/\text{t}$  時，除非貨物在內底均勻鋪開以使重量平均分佈，否則內底可能會受力過度。在航行和裝卸期間，須適當注意確保勿將貨物堆起而使內底受力過度。

### **注意事項**

可能接觸該貨物粉塵的人員須佩戴護目鏡或其他等效的眼睛防塵保護用品和防塵口罩。

艙底污水阱須保持清潔、乾燥並酌情遮蓋以防止貨物進入。測試裝載該貨物的貨物處所的污水系統，以確保其工作正常。須採取適當預防措施防止該貨物的粉塵進入機器處所和起居處所。須適當考慮設備的貨物粉塵保護。

### **通風**

無特別要求。

### **載運**

在航行期間，須定期檢查貨物表面的情況。若在航行期間觀察到貨物上面有自由液面或流態貨物，船長須採取適當措施以防止貨物移動和船舶

的傾覆危險，並考慮尋求緊急進入避難地。

### 卸貨

無特別要求。

### 清掃

無特別要求。”

### “煉鐵煉鋼產生的碎屑

#### 描述

此貨物主要由煉鐵和煉鋼過程中收集的鐵氧化物組成。熱軋過程中使用的水中和引流凹槽中後收集的碎屑，並伴隨軋製過程使用的少量油，是此貨物的主要成分。此貨物回用作為鐵的原料。形狀從粉末到塊狀。

顏色為灰色，灰棕色，灰黑綠色，棕色，燒赭石色。固體的比重為 3 到 6。

此貨物主要含有水分，油（少於 1.2%），鐵酸鹽（FeO），磁鐵（Fe<sub>3</sub>O<sub>4</sub>），赤鐵（Fe<sub>2</sub>O<sub>3</sub>），金屬鐵和鐵橄欖石（Fe<sub>2</sub>SiO<sub>4</sub>）。他含有的處理水分和油之外的化學元素的排列如下：Fe > 70%，Ca < 0.8%，Si < 0.7%，Al < 0.3%，Cr < 1.5%，Ni < 0.5%，Mn < 1.0%。

#### 特性

靜止角	密度 (kg/m <sup>3</sup> )	積載因數 (m <sup>3</sup> /t)
不適用	1,300 至 3,300	0.30 至 0.77
尺寸	類別	組別
達 150mm	不適用	A

#### 危險性

此貨物海運時如果超過適運水分極限可能會產生流態化。見本規則第 7 和第 8 節。此貨物非為易燃或具有低火災風險。

#### 積載和隔離

無特別要求。

### 貨艙清潔程度

無特別要求。

### 天氣注意事項

如果貨物未由符合本規則第 7.3.2 小節要求的船舶運輸，須遵守以下規定：

- .1 航行期間須將貨物的含水量保持在適運水分極限以下；
- .2 除非本明細表另有明確規定，不得在降水期間裝卸；
- .3 除非本明細表另有明確規定，在貨物裝卸期間，須關閉裝載或擬裝載該貨物的處所的不在使用中的所有艙蓋；
- .4 如果貨物滿足本規則第 4.3.3 小節中的規定，則可在降水期間裝卸；
- .5 如果貨物處所的全部貨物將在同一港口中卸完，可以在降水期間卸下貨物處所中的貨物。

### 裝載

按照本規則第 4、5 節中的有關規定進行平艙。

當貨物的積載因數等於或小於  $0.56\text{m}^3/\text{t}$  時，除非貨物在內底均勻鋪開以使重量平均分佈，否則內底可能會受力過度。在航行和裝卸期間，須適當注意確保勿將貨物堆起而使內底受力過度。

### 注意事項

如果必要，可能暴露於該貨物粉塵的人員須穿戴防護服，護目鏡或其他等效的眼睛防塵保護用品和防塵過濾口罩。

因為貨物可能含有少於 1.2% 的油類，應當注意不能直接從貨物處所排放入海。

### 通風



無特別要求。

### 載運

在航行期間，須定期檢查貨物表面的情況。若在航行期間觀察到貨物上面有自由液面或流態貨物，船長須採取適當措施以防止貨物移動和船舶的傾覆危險，並考慮尋求緊急進入避難地。

### 卸貨

無特別要求。

### 清掃

無特別要求。”

“**鋰輝石（精選的）**

### 描述

鋰輝石（精選的）無味的米白色到米色沙狀，含有自然生成的硅酸鹽和石英。他是通過加工自然生成的鋰輝石得到。

### 特性

靜止角	密度 (kg/m <sup>3</sup> )	積載因數 (m <sup>3</sup> /t)
30° 到 40°	1,600 至 2,000	0.50 至 0.63
尺寸	類別	組別
達 8mm	不適用	A

### 危險性

此貨物海運時如果超過適運水分極限可能會產生流態化。見本規則第 7 和第 8 節。此貨物為非易燃或具有低火災風險。

### 積載和隔離

無特別要求。

### 貨艙清潔程度

根據貨物危險性保持清潔和乾燥。

## 天氣注意事項

如果貨物未由符合本規則第 7.3.2 小節要求的船舶運輸，須遵守以下規定：

- .1 航行期間須將貨物的含水量保持在適運水分極限以下；
- .2 除非本明細表另有明確規定，不得在降水期間裝卸；
- .3 除非本明細表另有明確規定，在貨物裝卸期間，須關閉裝載或擬裝載該貨物的處所的不在使用中的所有艙蓋；
- .4 如果貨物滿足本規則第 4.3.3 小節中的規定，則可在降水期間裝卸；
- .5 如果貨物處所的全部貨物將在同一港口中卸完，可以在降水期間卸下貨物處所中的貨物。

## 裝載

按照本規則第 4、5 節中的有關規定進行平艙。

當貨物的積載因數等於或小於  $0.56 \text{ m}^3/\text{t}$  時，除非貨物在內底均勻鋪開以使重量平均分佈，否則內底可能會受力過度。在航行和裝卸期間，須適當注意確保勿將貨物堆起而使內底受力過度。

## 注意事項

艙底污水阱須保持清潔、乾燥並酌情遮蓋以防止貨物進入。測試裝載該貨物的貨物處所的污水系統，以確保其工作正常。

## 通風

無特別要求。

## 載運

在航行期間，須定期檢查貨物表面的情況。若在航行期間觀察到貨物上面有自由液面或流態貨物，船長須採取適當措施以防止貨物移動和船舶的傾覆危險，並考慮尋求緊急進入避難地。

**卸貨**

無特別要求。

**清掃**

無特別要求。”

“木球團，含有添加劑和/或黏合劑

**描述**

本明細表涵蓋的木球團含有添加劑和/或黏合劑。這些木球團顏色從淺金色到黑棕色；十分堅硬不能輕易壓扁；典型比重在從 1,100 至 1,700kg/m<sup>3</sup>。木球團由鋸末，刨花和其他木材廢料例如木材加工過程產生的樹皮。原料經粉碎，乾燥和使用添加劑和/或黏合劑擠壓成球型。原料被壓縮將近 3.5 倍，成品木球團典型含有 4%至 8%的水分。木球團作為燃料為赴加熱和發電，以及作為小空間加熱器的燃料，如爐灶和壁爐。

由於還其吸水特性可以用於動物的鋪墊。此類木球團的典型含水量為 8%至 10%。

對於不含有任何添加劑和/或黏合劑的木球團，見另外的明細表。

**特性**

靜止角	密度 (kg/m <sup>3</sup> )	積載因數 (m <sup>3</sup> /t)
大約 30°	600 至 750	1.33 至 1.67
尺寸	類別	組別
圓柱形 直徑：3mm 到 12mm 長度：10 到 20mm	MHB (WF)	B

**危險性**

裝船運輸取決於導致貨物處所和連通處所的氧氣消耗，一氧化碳和二氧化碳增加的氧化程度（同見天氣注意事項）。

暴露在水分中吸潮。如果水分含量超過 15%木球團可能會發酵，導致窒

息和並產生易燃氣體，進而自燃。

裝飾木球團可能會導致粉塵增加。高濃度粉塵有爆炸危險。

### **積載和隔離**

與第 4.1 類物質隔離。

### **貨艙清潔程度**

根據貨物危險性保持清潔和乾燥。

### **天氣注意事項**

該貨物須儘可能保持乾燥。該貨物不得在降水期間裝卸。在貨物裝卸期間，須關閉裝載或擬裝載該貨物的處所的不在使用中的所有艙蓋。關閉艙蓋後，臨近空間在通風前有較高風險會產生氧耗竭和生成一氧化碳。

### **裝載**

按照本規則第 4、5 和 6 節中的有關規定進行平艙。

### **注意事項**

人員進入貨物或相鄰密閉處所前，須對處所中的氧氣含量和一氧化碳濃度進行檢測，確保其恢復到以下水平：氧氣 21%，且一氧化碳 <100ppm。如未滿足上述條件，須對貨物或相鄰密閉處所進行再通風，並在合適時間間隔後進行重新檢測。

進入貨物和相鄰密閉處所的所有人員須攜帶並使用氧氣和一氧化碳監測儀器。

### **通風**

即使與貨艙相鄰的密閉處所與貨艙有明顯密封隔離，進入這些處所前需通風。

### **載運**

無特別要求。

**卸貨**

無特別要求。

**清掃**

無特別要求。

**應急措施**

<p><b>配備專用應急設備</b></p> <p>應使用自給式呼吸器和混合或獨立的氧氣、一氧化碳探測儀。</p>
<p><b>應急程序</b></p> <p>無</p> <p><b>火災時的緊急行動</b></p> <p>關艙；使用船舶的固定滅火設備（如安裝）。</p> <p>氣封能有效控制火勢。</p> <p>使用二氧化碳，泡沫或水滅火。</p> <p><b>醫療急救</b></p> <p>參見經修正的《危險貨物事故醫療急救指南（MFAG）》</p>

**“木球團，不含有任何添加劑和/或黏合劑****描述**

本明細表涵蓋的木球團不含有添加劑和/或黏合劑。這些木球團顏色從淺金色到黑棕色；十分堅硬不能輕易壓扁；典型比重在 1,100 至 1,700kg/m<sup>3</sup> 之間。木球團由鋸末，刨花和其他木材廢料例如木材加工過程產生的樹皮製成。原料經粉碎，乾燥和使用添加劑和/或黏合劑擠壓成球形。原料被壓縮將近 3.5 倍，成品木球團一般含有 4%到 8%的水分。木球團作為燃料為處所加熱和發電，以及作為小空間加熱器的燃料，如爐灶和壁爐。

由於其吸水特性木球團還可以用於動物的鋪墊。此類木球團的含水量一般為 8%至 10%。

含任何添加劑和/或黏合劑的木球團見獨立的明細表。

**特性**

靜止角	密度 (kg/m <sup>3</sup> )	積載因數 (m <sup>3</sup> /t)
大約 30°	600 至 750	1.33 至 1.67
尺寸	類別	組別
圓柱形 直徑：3mm 到 12mm 長度：10 到 20mm	MHB (OH)	B

### 危險性

裝船運輸取決於會導致貨物處所和連通處所的氧氣消耗，一氧化碳和二氧化碳增加的氧化程度（同見天氣注意事項）。

暴露在水分中吸潮。如果水分含量超過 15%木球團可能會發酵，導致窒息和產生易燃氣體，但是氣體濃度不會達到燃燒水平。此貨物具有低火災風險。

裝飾木球團作業可能會導致粉塵增加。高濃度粉塵有爆炸危險。

### 積載和隔離

與第 4.1 類物質隔離。

### 貨艙清潔程度

根據貨物危險性保持清潔和乾燥。

### 天氣注意事項

該貨物須儘可能保持乾燥。該貨物不得在降水期間裝卸。在貨物裝卸期間，須關閉裝載或擬裝載該貨物的處所的不在使用中的所有艙蓋。關閉艙蓋後，臨近空間在通風前有較高風險會產生氧耗竭和生成一氧化碳。

### 裝載

按照本規則第 4、5 和 6 節中的有關規定進行平艙。

### 注意事項

人員進入貨物或相鄰密閉處所前，須對處所中的氧氣含量和一氧化碳濃

度進行檢測，確保其恢復到以下水平：氧氣 21%，且一氧化碳 <100ppm。如未滿足上述條件，須對貨物或相鄰密閉處所進行再通風，並在合適時間間隔後進行重新檢測。

進入貨物和相鄰密閉處所的所有人員須攜帶並使用氧氣和一氧化碳監測儀器。

### 通風

即使與貨艙相鄰的密閉處所與貨艙有明顯密封隔離，進入這些處所前仍需通風。

### 載運

無特別要求。

### 卸貨

無特別要求。

### 清掃

無特別要求。

### 應急措施

<p><b>配備專用應急設備</b></p> <p>應使用自給式呼吸器和混合或獨立的氧氣、一氧化碳探測儀。</p>
<p><b>應急程序</b></p> <p>無</p> <p><b>火災時的緊急行動</b></p> <p>關艙；使用船舶的固定滅火設備（如安裝）。</p> <p>氣封能有效控制火勢。</p> <p>使用二氧化碳，泡沫或水滅火。</p> <p><b>醫療急救</b></p> <p>參見經修正的《危險貨物事故醫療急救指南（MFAG）》。</p>

”

“鋅渣

## 描述

鋅冶煉過程產生的殘留物。此貨物具有高滲透性，貨物的孔隙排水迅速。顏色呈黑色或紅棕色，粒狀或塊狀。

## 特性

靜止角	密度 (kg/m <sup>3</sup> )	積載因數 (m <sup>3</sup> /t)
不適用	1,500 至 2,500	0.40 至 0.67
尺寸	類別	組別
上達 10mm	不適用	A

## 危險性

此貨物海運時如果超過適運水分極限 (TML) 可能會產生流態化。見本規則第 7 和第 8 節。此貨物為不可燃或具有低火災風險。

## 積載和隔離

無特別要求。

## 貨艙清潔程度

無特別要求。

## 天氣注意事項

如果貨物未由符合本規則第 7.3.2 小節要求的船舶運輸，須遵守以下規定：

- .1 航行期間須將貨物的含水量保持在適運水分極限以下；
- .2 除非本明細表另中有明確規定，不得在降水期間裝卸；
- .3 除非明細表另有明確規定，在貨物裝卸期間，須關閉裝載或擬裝載該貨物的處所的不在使用中的所有艙蓋；
- .4 如果貨物滿足本規則第 4.3.3 小節中的規定，則可在降水期間裝卸；
- .5 如果貨物處所的全部貨物將在同一港口中卸完，可在降水



期間卸下貨物處所中的貨物。

### **裝載**

此貨物須進行平艙以確保貨堆峰谷高度差不超過船舶型寬的 5%，貨物從艙口到貨堆口均勻的傾斜，在航程中不會產生剪切面塌方。

當貨物的積載因數等於或小於  $0.56\text{m}^3/\text{t}$  時，除非貨物在內底均勻鋪開以使重量平均分佈，否則內底可能會受力過度。在航行和裝卸期間，須適當注意確保不要把貨物堆起而使內底受力過度。

### **注意事項**

應採取適當的預防措施，以保護機器和起居處所免受粉塵侵襲。應防止貨物進行貨物處所的污水井。採取適當措施防止貨物粉塵進入設備。如果必要，可能接觸該貨物粉塵的人員須佩戴護目鏡或其他等效的眼睛防塵保護用品和防塵口罩。

### **通風**

無特別要求。

### **載運**

航程中定時清理污水井中的水。

### **卸貨**

無特別要求。

### **清掃**

無特別要求。”

## **“鉛石藍晶石精礦**

### **描述**

鉛石藍晶石精礦為無味灰白色到棕色的，處理泥沙流（精選）和鉛砂產生的重礦砂混合物。用來升級諸如鉛石和藍晶石的礦砂產品。貨物很重。

**特性**

靜止角	密度 (kg/m <sup>3</sup> )	積載因數 (m <sup>3</sup> /t)
不適用	2,400 至 3,000	0.33 至 0.42
尺寸	類別	組別
細顆粒	不適用	A

**危險性**

此貨物海運時如果超過適運水分極限可能會產生流態化。見本規則第 7 和第 8 節。此貨物為非易燃或具有低火災風險。

**積載和隔離**

無特別要求。

**貨艙清潔程度**

根據貨物危險性保持清潔和乾燥。

**天氣注意事項**

如果貨物未由符合本規則第 7.3.2 小節要求的船舶運輸，須遵守以下規定：

- .1 航行期間須將貨物的含水量保持在適運水分極限以下；
- .2 除非本明細表另有明確規定，不得在降水期間裝卸；
- .3 除非本明細表另有明確規定，在貨物裝卸期間，須關閉裝載或擬裝載該貨物的處所的不在使用中的所有艙蓋；
- .4 如果貨物滿足本規則第 4.3.3 小節中的規定，則可在降水期間裝卸；
- .5 如果貨物處所的全部貨物將在同一港口中卸完，可在降水期間卸下貨物處所中的貨物。

**裝載**

按照本規則第 4、5 節中的有關規定進行平艙。

當貨物的積載因數等於或小於  $0.56\text{m}^3/\text{t}$  時，除非貨物在內底均勻鋪開以使重量平均分佈，否則內底可能會受力過度。在航行和裝卸期間，須適當注意確保勿將貨物堆起而使內底受力過度。

### 注意事項

艙底污水阱須保持清潔、乾燥並酌情遮蓋以防止貨物進入。測試裝載該貨物的貨物處所的污水系統，以確保其工作正常。

### 通風

無特別要求。

### 載運

在航行期間，須定期檢查貨物表面情況。若在航行期間觀察到貨物上面有自由液面或流態貨物，船長須採取適當措施以防止貨物移動和船舶的傾覆危險，並考慮尋求緊急進入避難地。

### 卸貨

無特別要求。

### 清掃

無特別要求。”

## 附錄 2

### 實驗室測試程序及相關的儀器和標準

#### 1 易流態化貨物的檢測程序及有關儀器

#### 47 新增“1.4”小節：

#### “1.4 適用鐵礦粉的改進的葡氏/樊氏測試法

#### 1.4.1 適用範圍

.1 本節中詳述的測試法僅適用於測定鐵礦粉的適運

水分極限（TML）。見鐵礦粉明細表。

- .2 鐵礦粉為包含以下物質的鐵礦：
  - .1 直徑小於 1mm 的粉狀顆粒佔 10%或以上，和
  - .2 直徑小於 10mm 的顆粒佔 50%或以上。
  - .3 按改進的葡氏/樊氏測試法，鐵礦粉的 TML 的取值為臨界水分極限，取飽和水分含量的 80%。
  - .4 當飽和程度相當於適宜水分含量（OMC）的 90%或更高時，本測試法適用。

#### 1.4.2 改進的葡氏/樊氏測試法的設備

- .1 葡氏測試儀（見圖 1.4.1）包括一個柱形鐵模和一個可拆卸的加長部分（衝壓圓筒）以及在底端開口的可在導筒中滑動的衝壓器（衝壓錘）。
- .2 天平與砝碼（見 3.2）及相應的貨樣容器。
- .3 能使溫度控制在 100°C 至 105°C 之間的烘乾爐。
- .4 一隻手動攪拌容器。應注意確保攪拌過程不會因破損降低所試材料的粒度，或因燒結提高物質的粒度或均勻性。
- .5 一套氣體或水測比重儀器（按認可標準（如 ASTM D5550、AS1289 等））以測定固體物質的密度。

#### 1.4.3 溫度和濕度（見 1.1.3）

#### 1.4.4 試驗程序

- .1 確定衝壓曲線

按有關標準（見《IMSBC 規則》第 4.7 節），必要時，將具代表性的試樣在約 60°C 或以下的溫度下進行部分乾燥，以將試樣水分減至合適初始水分。本測試中的代表性試樣不得完全乾燥，但水分含量測試除外。

試樣的總量至少為進行一次完整試驗所需試樣的 3 倍。應利用衝壓試驗測定 5 至 10 個不同水分含量（即進行 5 至 10 次不同試驗）。試樣的水分含量應從部分乾燥調製到接近飽和。每次衝壓試驗所需量約為 2000cm<sup>3</sup>。

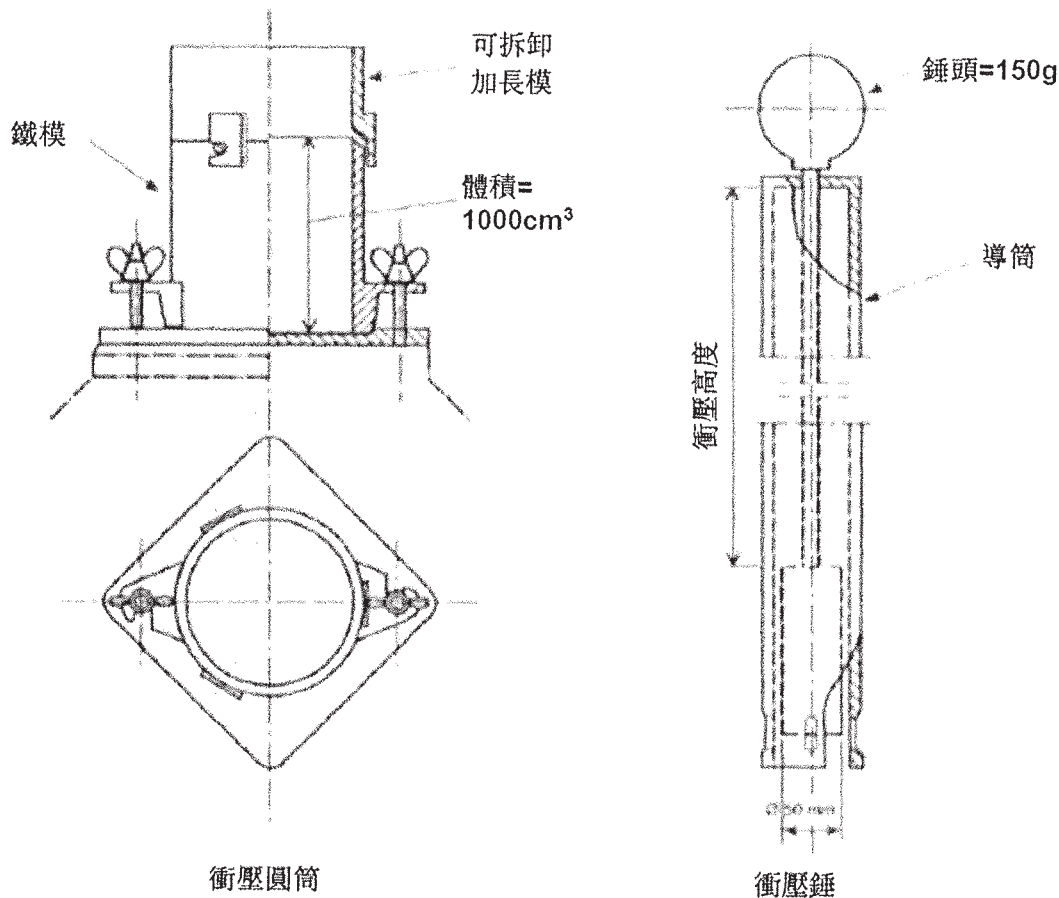


圖 1.4.1

每次進行衝壓試驗時應向試樣中加入適量的水。在允許靜止和平衡前試樣應被輕輕攪拌。取約五分之一的試樣裝入鐵模中並鏟平、然後將試樣表面均勻搗實。搗實用帶有導筒的衝壓器進行，150g 的錘搗 25 次，每次的升落高度為 0.15m。全部五層試樣均應用此法搗實。最後一層試樣搗實後，移去加長模，這時試樣與鐵模頂部小心平齊，確保去除任何可影響試樣平齊的大顆粒，用加長模內的材料代替並重新平齊。

將鐵模與搗實的試樣一同稱重之後取出試樣，將試樣在 105°C 下乾燥和稱重。參考 ISO 3087:2011 “鐵礦—貨堆水分含量測量”。對其他不同水分含量的試樣重複進行上述試驗。

固體物質密度應依照國際或國家認可標準，如 ASTM D5550 和 AS 1289 等，使用氣體或水比重測定設備進行測量（見第 1.4.2.5 小節）。

## .2 定義和計算數據（見圖 1.4.2）

- 空模質量 (g) :  $A$
- 圓筒與搗實試樣總質量 (g) :  $B$
- 濕試樣的質量 (g) :  $C$

$$C = B - A$$

- 乾樣的質量 (g) :  $D$
- 水的質量 (g)（換算為體積  $\text{cm}^3$  數值） :  $E$

$$E = C - D$$

圓筒的容積 :  $1000\text{cm}^3$

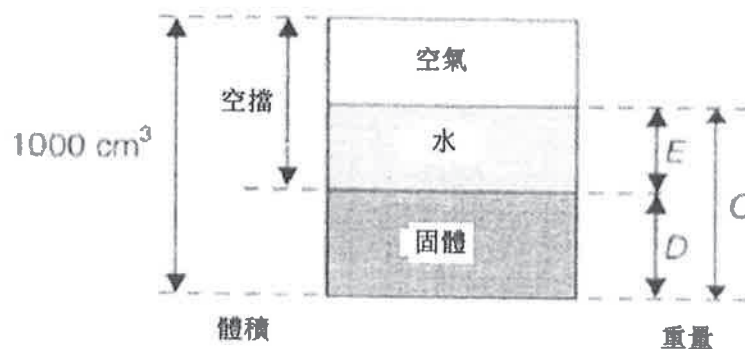


圖 1.4.2

### 3 主要參數計算

- 固體物質的密度 ( $\text{g}/\text{cm}^3$ 、 $\text{t}/\text{m}^3$ ) :  $d$

- 乾散貨的密度 ( $\text{g}/\text{cm}^3$ 、 $\text{t}/\text{m}^3$ ) :  $\gamma$

$$\gamma = \frac{D}{1000}$$

- 淨水含量，體積% :

$$e_v = \frac{E}{D} \times 100 \times d$$

- 空隙比 :  $e$  (空隙體積除以固體體積)

$$e = \frac{d}{\gamma} - 1$$

- 飽和度，體積百分比 :  $S$

$$S = \frac{e_v}{e}$$

- 總水含量 (質量百分比) :  $W^l$

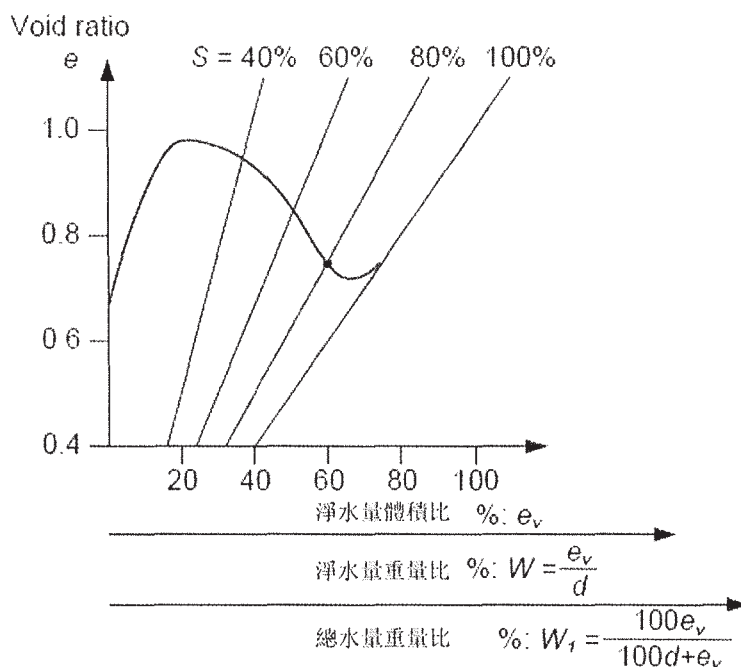
$$W^l = \frac{E}{C} \times 100$$

- 淨水含量 (質量百分比) :  $W$

$$W = \frac{E}{D} \times 100$$

**.4 衝壓試驗圖的繪製**

每次衝壓試驗後，將計算出的空隙比（ $e$ ）作為縱坐標，將淨含水體積比（ $e_v$ ）和飽和度（ $S$ ）為別作為橫坐標參數，畫在圖上。



**圖 1.4.3**

**.5 衝壓曲線**

全部試驗構成一條具體的衝壓曲線（見 1.4.3）。

衝壓曲線與飽和度線  $S=80\%$  的交點即為臨界水分含量。該含水量即為適運水分極限（TML）。

適宜水分含量（OMC）是指相應壓緊條件下最大壓緊（最大乾密度）的水分含量。為核查本測試的適用性，在本測試期間，應對水分含量和乾密度之間的關係進行評估。之後才能確定 OMC 和相



應飽和程度。本測試法是根據以下，即飽和程度相應的鐵礦粉 OMC 為 90 至 95%，而精礦的飽和程度為 70 至 75%。如果飽和程度相應的 OMC 小於 90%，託運人應就本測試的理論可能不適用該物質和本測試測定的 TML 可能太高諮詢有關當局。”

### 附錄 3

#### 固體散裝貨物的特性

#### 1 非黏性貨物

##### 1.1 以下貨物乾燥時不具有黏性：

48 在清單中，按照字母表順序加入新的項目：

“氟化鋁”

“鋰輝石”

“木球團，含有添加劑和/或黏合劑”

“木球團，不含有添加劑和/或黏合劑”

刪除“木球團”。

### 附錄 4

#### 索引

49 按照字母表順序插入新的項目：

物質	組別	備註
氟化鋁	A	
非晶硅酸鈉	B	
硼酸	B	
化學石膏	A	
銅渣	A	
碎玻璃	C	
鐵和鋼渣及其混合物	A	
鐵礦粉	A	
工業氧化鐵	A	
燒結鐵	C	
錳鐵合金渣	C	
錳礦粉	A	
煉鐵煉鋼產生的碎屑	A	
鋰輝石	A	
木球團，含有添加劑和/或黏合劑	B	
木球團，不含有任何添加劑和/或黏合劑	B	
鋅渣	A	
鉛石藍晶石精礦	A	

- 50 “木球團” 條目刪除。
- 51 “爐渣，濕的” 條目中 “濕的” 刪除。

## 附錄 5

### 三種語言（英語、西班牙語和法語）的散貨船運名

- 52 在附錄 4 後插入如下新的附錄 5：

“三種語言（英語、西班牙語和法語）的  
散貨船運名

英語	西班牙語	法語
ALFALFA	ALFALFA	LUZERNE
ALUMINA	ALÚMINA	ALUMINE
ALUMINA, CALCINED	ALÚMINA CALCINADA	ALUMINE CALCINÉE
ALUMINA HYDRATE	HIDRATO DE ALÚMINA	HYDRATE D'ALUMINE
ALUMINIUM FLUORIDE	FLUORURO DE ALUMINIO	FLUORURE D'ALUMINIUM
Aluminium hydroxide	Hidróxido de aluminio	Hydroxyde d'aluminium
ALUMINA SILICA	ALÚMINA SÍLICE	ALUMINE SILICEUSE
ALUMINA SILICA, pellets	ALÚMINA SÍLICE, pellets de	ALUMINE SILICEUSE en granules
ALUMINIUM DROSS	RESIDUOS DE ALUMINIO	LAITIER D'ALUMINIUM
ALUMINIUM FERROSILICON POWDER UN 1395	ALUMINIO-FERROSILICIO EN POLVO, No ONU 1395	ALUMINO-FERRO-SILICIUM EN POUDRE UN 1395
ALUMINIUM NITRATE UN 1438	NITRATO DE ALUMINIO, No ONU 1438	NITRATE D'ALUMINIUM UN 1438
ALUMINIUM REMELTING BY-PRODUCTS UN 3170	PRODUCTOS DERIVADOS DE LA REFUNDICIÓN DEL ALUMINIO No ONU 3170	SOUS-PRODUITS DE LA REFUSION DE L'ALUMINIUM UN 3170
Aluminium salt slags	ESCORIA DE SALES DE ALUMINIO	SCORIES SALINES D'ALUMINIUM
ALUMINIUM SMELTING / REMELTING BY-PRODUCTS, PROCESSED	PRODUCTOS DERIVADOS DE LA FUNDICIÓN DEL ALUMINIO o PRODUCTOS DERIVADOS DE LA REFUNDICIÓN DEL ALUMINIO, TRATADOS	SOUS-PRODUITS DE LA FABRICATION/REFUSION DE L'ALUMINIUM, TRAITÉS
ALUMINIUM SILICON POWDER, UNCOATED UN 1398	ALUMINIO-SILICIO EN POLVO, NO RECUBIERTO, No ONU 1398	SILICO-ALUMINIUM EN POUDRE NON ENROBÉ UN 1398
ALUMINIUM SKIMMINGS	ESPUMA DE ALUMINIO	CRASSE D'ALUMINIUM
ALUMINIUM SMELTING BY-PRODUCTS UN 3170	PRODUCTOS DERIVADOS DE LA FUNDICIÓN DEL ALUMINIO, No ONU 3170	SOUS-PRODUITS DE LA FABRICATION DE L'ALUMINIUM UN 3170
AMMONIUM NITRATE UN 1942	NITRATO AMÓNICO, No ONU 1942	NITRATE D'AMMONIUM UN 1942
AMMONIUM NITRATE BASED FERTILIZER UN 2067	ABONOS A BASE DE NITRATO AMÓNICO, No ONU 2067	ENGRAIS AU NITRATE D'AMMONIUM UN 2067
AMMONIUM NITRATE BASED FERTILIZER UN 2071	ABONOS A BASE DE NITRATO AMÓNICO, No ONU 2071	ENGRAIS AU NITRATE D'AMMONIUM UN 2071
AMMONIUM NITRATE, BASED FERTILIZER (non-hazardous)	ABONOS A BASE DE NITRATO AMÓNICO (no entrañan riesgos)	ENGRAIS AU NITRATE D'AMMONIUM (non dangereux)
AMMONIUM SULPHATE	SULFATO AMÓNICO	SULFATE D'AMMONIUM

英語	西班牙語	法語
AMORPHOUS SODIUM SILICATE LUMPS	TERRONES DE SILICATO SÓDICO AMORFO	MORCEAUX DE SILICATE DE SODIUM AMORPHE
ANTIMONY ORE AND RESIDUE	ANTIMONIO, MINERAL Y RESIDUOS DE	MINERAI D'ANTIMOINE ET RÉSIDU DE MINERAI D'ANTIMOINE
Bakery materials	Materias de panadería	Produits de boulangerie
BARIUM NITRATE UN 1446	NITRATO DE BARIO, No ONU 1446	NITRATE DE BARYUM UN 1446
Barley malt pellets	Malta de cebada, pellets de	Malte d'orge en boulettes
BARYTES	BARITAS	BARYTINE
BAUXITE	BAUXITA	BAUXITE
Beet, expelled	Remolacha, prensada	Betterave, triturée
Beet, extracted	Remolacha, en extracto	Betterave, sous-produits de l'extraction
BIOSLUDGE	FANGOS BIOLÓGICOS	BOUE ACTIVÉE
Blende (zinc sulphide)	Blenda (sulfuro de cinc)	Blende (sulfure de zinc)
BORAX (PENTAHYDRATE CRUDE)	BÓRAX (CRUDO PENTAHIDRATADO)	BORAX (BRUT PENTAHYDRATÉ)
BORAX, ANHYDROUS, crude	BÓRAX ANHIDRO, crudo	BORAX ANHYDRE brut
BORAX, ANHYDROUS, refined C	BÓRAX ANHIDRO, refinado	BORAX ANHYDRE raffiné C
BORIC ACID	ÁCIDO BÓRICO	ACIDE BORIQUE
Bran pellets	Salvado, pellets de	Son en boulettes
Brewer's grain pellets	Orujo de cerveza, pellets de	Drêches de brasserie en boulettes
BROWN COAL BRIQUETTES	BRIQUETAS DE LIGNITO	CHARBON BRUN EN BRIQUETTES
Calcined clay	Arcilla calcinada	Argile calcinée
Calcined pyrites	Piritas calcinadas	Pyrites calcinées
Calcium fluoride	Fluoruro de calcio	Fluorure de calcium
CALCIUM NITRATE	NITRATO CÁLCICO, No ONU 1454	NITRATE DE CALCIUM
CALCIUM NITRATE FERTILIZER	ABONOS A BASE DE NITRATO CÁLCICO	ENGRAIS AU NITRATE DE CALCIUM
Calcium oxide	Óxido de calcio	Oxyde de calcium
Canola pellets	Píldoras de canola	Canola en boulettes
CARBORUNDUM	CARBORUNDO	CARBORUNDUM
CASTOR BEANS UN 2969	SEMILLAS DE RICINO, No ONU 2969	GRAINES DE RICIN UN 2969

英語	西班牙語	法語
CASTOR FLAKE UN 2969	ESCAMAS DE RICINO, No ONU 2969	GRAINES DE RICIN EN FLOCONS UN 2969
CASTOR MEAL UN 2969	HARINA DE RICINO, No ONU 2969	FARINES DE RICIN UN 2969
CASTOR POMACE UN 2969	PULPA DE RICINO, No ONU 2969	TOURTEAUX DE RICIN UN 2969
CEMENT	CEMENTO	CIMENT
CEMENT CLINKERS	CEMENTO, CLINKERS DE	CIMENT, CLINKERS DE
CEMENT COPPER	COBRE DE CEMENTACIÓN	CUIVRE CÉMENT
Chalcopyrite	Calcopirita	Chalcopyrite
CHAMOTTE	CHAMOTA	CHAMOTTE
CHARCOAL	CARBÓN VEGETAL	CHARBON
CHEMICAL GYPSUM	YESO QUÍMICO	GYPSE DE SYNTHÈSE
CHOPPED RUBBER AND PLASTIC INSULATION	FRAGMENTOS DE REVESTIMIENTOS AISLANTES DE GOMA Y PLÁSTICO	FRAGMENTS D'ISOLANT EN PLASTIQUE ET EN CAOUTCHOUC
Chile saltpetre	Salitre de Chile	Salpêtre du Chili
Chilean natural nitrate	Nitrato natural de Chile	Nitrate naturel du Chili
Chilean natural potassic nitrate	Nitrato potásico natural de Chile	Nitrate de potassium naturel du Chili
Chrome ore	Cromo, mineral de	Minerai de chrome
CHROME PELLETS	CROMO, PELLETS DE	CHROME EN PELLETS
CHROMITE ORE	CROMITA, MINERAL DE	MINERAI DE CHROMITE
Chromium ore	Cromio, mineral de	Minerai de chromium
Citrus pulp pellets	Cítricos, pellets de pulpa de	Pulpe d'agrumes en boulettes
CLAY	ARCILLA	ARGILE
CLINKER ASH	CENIZAS DE CLÍNKER	CENDRES DE MÂCHEFER
COAL	CARBÓN	CHARBON
COAL SLURRY	FANGOS DE CARBÓN	BOUES DE CHARBON
COAL TAR PITCH	BREA DE ALQUITRÁN DE HULLA	BRAI DE GOUDRON DE HOUILLE
COARSE CHOPPED TYRES	FRAGMENTOS DE NEUMÁTICOS TRITURADOS	FRAGMENTS DE PNEUS DE GRANDES DIMENSIONS
COARSE IRON AND STEEL SLAG AND ITS MIXTURE	ESCORIA GRUESA DE HIERRO Y ACERO Y SU MEZCLA	SCORIES DE FER ET D'ACIER À GROS GRAINS ET LEUR MÉLANGE
Coconut	Coco	Noix de coco

英語	西班牙語	法語
COKE	COQUE	COKE
COKE BREEZE	CISCO DE COQUE	POUSSIER DE COKE
COLEMANITE	COLEMANITA	COLÉMANITE
COPPER CONCENTRATE	COBRE, CONCENTRADO DE	CONCENTRÉ DE CUIVRE
COPPER GRANULES	COBRE, GRÁNULOS DE	CUIVRE EN GRANULES
COPPER MATTE	COBRE, MATA DE	MATTE DE CUIVRE
Copper nickel	Cuproníquel	Nickel-cuivre
COPPER SLAG	COBRE, ESCORIA DE	SCORIES DE CUIVRE
Copper ore concentrate	Cobre, concentrado mineral de	Concentré de minerai de cuivre
COPPER CONCENTRATE	COBRE, CONCENTRADO DE	CONCENTRÉ DE CUIVRE
Copper precipitate	Cobre, precipitado de	Précipités de cuivre
CEMENT COPPER	COBRE DE CEMENTACIÓN	CUIVRE CÉMENT
COPRA (dry) UN 1363 B	COPRA (seca), No ONU 1363 B	COPRAH (sec) UN 1363
Copra, expelled	Copra, prensada	Coprah, trituré
Copra, extracted	Copra, en extracto	Coprah, sous-produit d'extraction
Corn gluten	Maíz, gluten de	Gluten de maïs
Cotton seed	Semillas de algodón	Graines de cotonnier
CRUSHED CARBON ANODES	ÁNODOS DE CARBÓN TRITURADOS	ANODES EN CARBONE CONCASSÉES
CRYOLITE	CRIOLITA	CRYOLITHE
Deadburned magnesite	Magnesita calcinada a muerte	Magnésite calcinée
DIAMMONIUM PHOSPHATE	FOSFATO DIAMÓNICO	HYDROGÉNOPHOSPHATE DE DIAMMONIUM
DIRECT REDUCED IRON (A) Briquettes, hot-moulded	HIERRO OBTENIDO POR REDUCCIÓN DIRECTA (A) En forma de briquetas moldeadas en caliente	FER OBTENU PAR RÉDUCTION DIRECTE (A) Briquettes moulées à chaud
DIRECT REDUCED IRON (B) Lumps, pellets, cold-moulded briquettes	HIERRO OBTENIDO POR REDUCCIÓN DIRECTA (B) Terrones, pellets y briquetas moldeadas en frío	FER OBTENU PAR RÉDUCTION DIRECTE (B) Morceaux, pellets, briquettes moulées à froid et tournures de fer indiennes
DIRECT REDUCED IRON (C) By-product fines	HIERRO OBTENIDO POR REDUCCIÓN DIRECTA (C) (Finos obtenidos como productos derivados)	FER OBTENU PAR RÉDUCTION DIRECTE (C) (Fines en tant que sous-produit)
DISTILLERS DRIED GRAINS WITH SOLUBLES	GRANOS SECOS DE DESTILERÍA CON SOLUBLES	DISTILLATS SÉCHÉS DE GRAINS AVEC RÉSIDUS SOLUBLES



英語	西班牙語	法語
DOLOMITE	DOLOMITA	DOLOMITE
Dolomitic quicklime	Cal dolomítica	chaux vive dolomitique
D.R.I.	HRD	not applicable in French
Expellers	Tortas de presión	Expellers
FELSPAR LUMP	FELDESPATO EN TERRONES	FELDSPATH EN MORCEAUX
FERROCHROME	FERROCROMO	FERROCHROME
FERROCHROME, exothermic	FERROCROMO exotérmico	FERROCHROME, exothermique
FERROMANGANESE	FERROMANGANESO	FERROMANGANÈSE
Ferromanganese, exothermic	Ferromanganeso exotérmico	Ferromanganèse exothermique
FERRONICKEL	FERRONÍQUEL	FERRONICKEL
FERROPHOSPHORUS	FERROFÓSFORO	FERROPHOSPHORE
Ferrophosphorus briquettes	Ferrofósforo, briquetas de	Ferrophosphore en briquettes
FERROSILICON UN 1408	FERROSILICIO, No ONU 1408	FERROSILICIUM UN 1408
FERROSILICON	FERROSILICIO	FERROSILICIUM
FERROUS METAL BORINGS UN 2793	VIRUTAS DE TALADRADO DE METALES FERROSOS, No ONU 2793	ROGNURES DE MÉTAUX FERREUX UN 2793
FERROUS METAL CUTTINGS UN 2793	RECORTES DE METALES FERROSOS, No ONU 2793	ÉBARBURES DE MÉTAUX FERREUX UN 2793
FERROUS METAL SHAVINGS UN 2793	RASPADURAS DE METALES FERROSOS, No ONU 2793	COPEAUX DE MÉTAUX FERREUX UN 2793
FERROUS METAL TURNINGS UN 2793	VIRUTAS DE TORNEADO DE METALES FERROSOS, No ONU 2793	TOURNURES DE MÉTAUX FERREUX UN 2793
FERROUS SULPHATE HEPTAHYDRATE	SULFATO FERROSO HEPTAHIDRATADO	SULFATE FERREUX HEPTAHYDRATÉ
FERTILIZERS WITHOUT NITRATES	ABONOS SIN NITRATOS (no entrañan riesgos)	ENGRAIS SANS NITRATES
FISH (IN BULK)	PESCADO (A GRANEL)	POISSON (EN VRAC)
FISHMEAL, STABILIZED UN 2216	HARINA DE PESCADO ESTABILIZADA, No ONU 2216	FARINE DE POISSON STABILISÉE UN 2216
FISHSCRAP, STABILIZED UN 2216	DESECHOS DE PESCADO ESTABILIZADOS, No ONU 2216	DÉCHETS DE POISSON STABILISÉS UN 2216
FLUORSPAR	ESPATOFLÚOR	SPATH FLUOR
FLY ASH, DRY	CENIZAS VOLANTES SECAS	CENDRES VOLANTES SÈCHES

英語	西班牙語	法語
FLY ASH, WET	CENIZAS VOLANTES HÚMEDAS	CENDRES VOLANTES HUMIDES
Galena (lead sulphide)	Galena (sulfuro de plomo)	Galène (sulfure de plomb)
Garbage tankage	Detritos orgánicos	Détritus organiques
GLASS CULLET	DESPERDICIOS DE VIDRIO	CALCIN DE VERRE
Gluten pellets	Gluten, pellets de	Gluten en boulettes
GRAIN SCREENING PELLETS	PELLETS DE GRANZA DE GRANO	CRIBLURES DE GRAIN EN PELLETS
GRANULAR FERROUS SULPHATE	SULFATO FERROSO GRANULAR	SULFATE FERREUX EN GRANULES
GRANULATED NICKEL MATTE (LESS THAN 2% MOISTURE CONTENT)	MATA DE NÍQUEL GRANULADA (CONTENIDO DE HUMEDAD INFERIOR A 2 %)	MATTE DE NICKEL EN GRANULES (TENEUR EN HUMIDITÉ INFÉRIEURE À 2 %)
GRANULATED SLAG	ESCORIA GRANULADA	SCORIES EN GRAINS
GRANULATED TYRE RUBBER	NEUMÁTICO GRANULADO	CAOUTCHOUC DE PNEUS EN GRANULES
Ground nuts, meal	Maní (cacahuetes), harina de	Farine d'arachide
GYPSUM	YESO	GYPSE
Hominy chop	Machacado	Hominy chop
GYPSUM GRANULATED	YESO GRANULADO	GYPSE EN GRAINS
ILMENITE CLAY	ILMENITA, ARCILLA DE	ARGILE D'ILMÉNITE
ILMENITE (ROCK)	ILMENITA (ROCA)	ILMÉNITE (ROCHE)
ILMENITE SAND	ILMENITA, ARENA DE	SABLE D'ILMÉNITE
ILMENITE (UPGRADED)	ILMENITA (ENRIQUECIDA)	ILMÉNITE VALORISÉE
IRON AND STEEL SLAG AND ITS MIXTURE	ESCORIA DE HIERRO Y ACERO Y SU MEZCLA	SCORIES DE FER ET D'ACIER ET LEUR MÉLANGE
IRON CONCENTRATE	HIERRO, CONCENTRADO DE	CONCENTRÉ DE FER
IRON CONCENTRATE (pellet feed)	HIERRO, CONCENTRADO DE (para pellets)	CONCENTRÉ DE FER (pour pellets)
IRON CONCENTRATE (sinter feed)	HIERRO, CONCENTRADO DE (para aglomerados)	CONCENTRÉ DE FER (pour agglomérés)
Iron disulphide	Disulfuro de hierro	Disulfure de fer
IRON ORE	HIERRO, MINERAL DE	MINERAI DE FER
Iron ore (concentrate, pellet feed, sinter feed)	Hierro, mineral de (concentrado, aglomerados o pellets)	Minerai de fer (concentré, pour pellets, pour agglomérés)
IRON ORE FINES	FINOS DE MINERAL DE HIERRO	FINES DE MINERAI DE FER



英語	西班牙語	法語
IRON ORE PELLETS	HIERRO, PELLETS DE MINERAL DE	MINERAI DE FER EN PELLETS
IRON OXIDE, SPENT UN 1376	ÓXIDO DE HIERRO AGOTADO, No ONU 1376	OXYDE DE FER RÉSIDUAIRE UN 1376
IRON OXIDE TECHNICAL	ÓXIDO DE HIERRO-GRADO TÉCNICO	OXYDE DE FER DE QUALITÉ TECHNIQUE
IRON SINTER	HIERRO SINTERIZADO	AGGLOMÉRÉS DE FER
Iron swarf	Hierro, virutas de	copeaux de fer
IRON SPONGE, SPENT UN 1376	ESPONJA DE HIERRO AGOTADA, No ONU 1376	TOURNURE DE FER RÉSIDUAIRE UN 1376
IRONSTONE	ROCA FERRUGINOSA	ROCHE FERRUGINEUSE
LABRADORITE	LABRADORITA	LABRADOR
LEAD AND ZINC CALCINES (mixed)	PLOMO Y CINCO, CALCINADOS DE (en mezclas)	PLOMB ET ZINC CALCINÉS (en mélange)
LEAD AND ZINC MIDDINGS	PLOMO Y CINCO, MIXTOS DE	MIXTES DE PLOMB ET DE ZINC
LEAD CONCENTRATE	PLOMO, CONCENTRADO DE	CONCENTRÉ DE PLOMB
LEAD NITRATE UN 1469	NITRATO DE PLOMO, No ONU 1469	NITRATE DE PLOMB UN 1469
LEAD ORE	PLOMO, MINERAL DE	MINERAI DE PLOMB
Lead ore concentrate	Plomo, concentrado de mineral de	Concentré de minerai de plomb
LEAD ORE RESIDUE	PLOMO, RESIDUOS DE MINERAL DE	RÉSIDU DE MINERAI DE PLOMB
LEAD SILVER CONCENTRATE	PLOMO Y PLATA, CONCENTRADO DE	CONCENTRÉ DE PLOMB ARGENTIFÈRE
Lead silver ore	Plomo y plata, mineral de	Minerai de plomb argentifère
Lead sulphide	Sulfuro de plomo	Sulfure de plomb
Lead sulphide (galena)	Sulfuro de plomo (galena)	Sulfure de plomb (galène)
Lignite	Lignita	Lignite
LIME (UNSLAKED)	CAL (VIVA)	CHAUX (VIVE)
LIMESTONE	PIEDRA CALIZA	CALCAIRE
LINTED COTTON SEED	SEMILLAS DE ALGODÓN DESPEPITADO	GRAINES DE COTONNIER AVEC LINTER
Linseed, expelled	Linaza, prensada	Graines de lin, triturées
Linseed, extracted	Linaza, en extracto	Graines de lin, sous-produits de l'extraction
LOGS	TRONCOS	GRUMES

英語	西班牙語	法語
MAGNESIA (DEADBURNED)	MAGNESIA (CALCINADA A MUERTE)	MAGNÉSIE (CALCINÉE)
MAGNESIA (UNSLAKED)	MAGNESIA (VIVA)	MAGNÉSIE (VIVE)
Magnesia, clinker	Magnesia, clinker de	Magnésie en clinkers
Magnesia, electro-fused	Magnesia electrofundida	Magnésie électrofondue
Magnesia, lightburned	Magnesia quemada ligeramente	Magnésie calcinée légère
Magnesia, calcined	Magnesia calcinada	Magnésie calcinée
Magnesia, caustic calcined	Magnesia cáustica calcinada	Magnésie calcinée caustique
Magnesite, clinker	Magnesita, clinker de	Magnésite, clinkers de
MAGNESITE, natural	MAGNESITA natural	MAGNÉSITE, naturelle
Magnesium carbonate	Carbonato de magnesio	Carbonate de magnésium
MAGNESIUM NITRATE UN 1474	NITRATO DE MAGNESIO, No ONU 1474	NITRATE DE MAGNÉSIUM UN 1474
MAGNESIUM SULPHATE FERTILIZERS	ABONOS DE SULFATO DE MAGNESIO	ENGRAIS AU SULFATE DE MAGNÉSIUM
Maize, expelled	Maíz, prensado	Maïs, trituré
Maize, extracted	Maíz, en extracto	Maïs, sous-produit de l'extraction
MANGANESE COMPONENT FERROALLOY SLAG	ESCORIA DE ALEACIÓN DE HIERRO CON MANGANESO	SCORIES DE FERRO-ALLIAGES DE MANGANÈSE
MANGANESE CONCENTRATE	MANGANESO, CONCENTRADO DE	CONCENTRÉ DE MANGANÈSE
MANGANESE ORE	MANGANESO, MINERAL DE	MINÉRAI DE MANGANÈSE
MANGANESE ORE FINES	FINOS DE MINERAL DE MANGANESO	FINES DE MINÉRAI DE MANGANÈSE
M.A.P.	FMA	[not applicable in French]
MARBLE CHIPS	MÁRMOL, ASTILLAS DE	ÉCLATS DE MARBRE
Meal, oily	Harina oleosa	Farines oléagineuses
METAL SULPHIDE CONCENTRATES	SULFUROS METÁLICOS, CONCENTRADOS DE	CONCENTRÉS DE SULFURES MÉTALLIQUES
Mill feed pellets	Piensos, pellets de	Sous-produits de meunerie en boulettes
Milorganite	Milorganita	Milorganite
Mineral Concentrates	Concentrados de minerales	Concentrés de minerais
MONOAMMONIUM PHOSPHATE	FOSFATO MONOAMÓNICO	MONOPHOSPHATE D'AMMONIUM
Muriate of potash	Muriato de potasa	Muriate de potasse
NEFELINE SYENITE (mineral)	SIENITA NEFELÍNICA (mineral)	SYÉNITE NÉPHÉLINIQUE (minérai)

英語	西班牙語	法語
NICKEL ORE	MINERAL DE NÍQUEL	MINERAI DE NICKEL
NICKEL CONCENTRATE	NÍQUEL, CONCENTRADO DE	CONCENTRÉ DE NICKEL
Nickel ore concentrate	Níquel, concentrado de mineral de	Concentré de minerai de nickel
Niger seed, expelled	Níger, semillas de, prensadas	Graines de niger, triturées
Niger seed, extracted	Níger, semillas de, en extracto	Graines de niger, sous-produits de l'extraction
Oil cake	Torta oleaginosa	Tourteaux oléagineux
Palm kernel, expelled	Nuez de palma, prensada	Amande de palmiste, triturée
Palm kernel, extracted	Nuez de palma, en extracto	Amande de palmiste, sous-produit de l'extraction
Peanuts, expelled	Cacahuètes (maní), prensados	Cacahuètes, triturées
Peanuts, extracted	Cacahuètes (maní), en extracto	Cacahuètes, sous-produits de l'extraction
PEANUTS (in shell)	CACAHUETES (con vaina)	CACAHUÈTES (en coques)
PEAT MOSS	TURBA FIBROSA	TOURBE HORTICOLE
PEBBLES (sea)	CANTOS RODADOS (de mar)	GALETS (de mer)
PELLETS (concentrates)	PELLETS (concentrados)	PELLETS (concentrés)
Pellets (cereal)	Cereales, pellets de	Céréales en boulettes
Pencil pitch	Brea en lápices	Brai en crayons
PENTAHYDRATE CRUDE	PENTAHIDRATO EN BRUTO	PENTAHYDRATE BRUT
PERLITE ROCK	PERLITA, ROCA DE	ROCHE PERLITE
PETROLEUM COKE (calcined)	COQUE DE PETRÓLEO (calcinado)	COKE DE PÉTROLE (calciné)
PETROLEUM COKE (uncalcined)	COQUE DE PETRÓLEO (no calcinado)	COKE DE PÉTROLE (non calciné)
PHOSPHATE ROCK (calcined)	FOSFATO EN ROCA (calcinado)	ROCHE PHOSPHATÉE (calcinée)
PHOSPHATE ROCK (uncalcined)	FOSFATO EN ROCA (no calcinado)	ROCHE PHOSPHATÉE (non calcinée)
PHOSPHATE (defluorinated)	FOSFATO (desfluorado)	PHOSPHATE (défluoré)
PIG IRON	HIERRO EN LINGOTES	FONTE EN GUEUSES
PITCH PRILL	BREA EN BOLITAS	BRAI EN GRAINS
Pollard pellets	Trasmochos, pellets de	Recoupette en boulettes
POTASH	POTASA	POTASSE
Potash muriate	Muriato de potasa	Muriate de potasse

英語	西班牙語	法語
POTASSIUM CHLORIDE	CLORURO POTÁSICO	CHLORURE DE POTASSIUM
POTASSIUM NITRATE UN 1486	NITRATO POTÁSICO, No ONU 1486	NITRATE DE POTASSIUM UN 1486
Potassium nitrate/sodium nitrate (mixture)	Nitrato potásico y nitrato sódico, mezclas de	Nitrate de potassium/nitrate de sodium (en mélange)
POTASSIUM NITRATE MIXTURE	Nitrato potásico en mezcla	NITRATE DE POTASSIUM EN MÉLANGE
POTASSIUM SULPHATE	SULFATO DE POTASIO	SULFATE DE POTASSIUM
Prilled coal tar	Alquitrán de hulla en bolitas	Goudron de houille en grains
PULP WOOD	MADERA PARA PASTA PAPELERA	BOIS À PÂTE
PUMICE	PIEDRA PÓMEZ	PONCE
PYRITE (containing copper and iron)	PIRITA (contiene cobre y hierro)	PYRITE (contenant du cuivre et du fer)
PYRITES, CALCINED	PIRITAS CALCINADAS	PYRITES CALCINÉES
PYRITES	PIRITAS	PYRITES
Pyrites (cupreous, fine, flotation, or sulphur)	Piritas (cuprosas, disgregadas, flotación o azufre)	Pyrites (cuivreuses, fines, flottation, soufre)
Pyritic ash	Cenizas piriticas	Cendres pyriteuses
PYRITIC ASHES (iron)	CENIZAS PIRITOSAS (hierro)	CENDRES PYRITEUSES (fer)
PYRITIC CINDERS	ESCORIAS PIRITOSAS	CENDRES PYRITEUSES
PYROPHYLLITE	PIROFILITA	PYROPHYLLITE
QUARTZ	CUARZO BLANCO	QUARTZ
QUARTZITE	CUARCITA	QUARTZITE
Quicklime	Cal viva	chaux vive
RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I) UN 2912	MATERIALES RADIATIVOS, DE BAJA ACTIVIDAD ESPECÍFICA (BAE-I), No ONU 2912	MATIÈRES RADIOACTIVES DE FAIBLE ACTIVITÉ SPÉCIFIQUE (LSA-I) UN 2912
RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I) UN 2913	MATERIALES RADIATIVOS, OBJETOS CONTAMINADOS EN LA SUPERFICIE (OCS-I), No ONU 2913	MATIÈRES RADIOACTIVES, OBJETS CONTAMINÉS SUPERFICIELLEMENT (SCO-I) UN 2913
Rape seed, expelled	Semillas de colza, prensadas	Graines de colza, triturées
Rape seed, extracted	Semillas de colza, en extracto	Graines de colza, sous-produits de l'extraction
RASORITE (ANHYDROUS)	RASORITA (ANHIDRA)	RASORITE (ANHYDRE)
Rice bran	Arroz, salvado de	Son de riz

英語	西班牙語	法語
Rice broken	Arroz partido	Brisures de riz
Rough ammonia tankage	Amonio en bruto, desechos orgánicos de	Déchets organiques ammoniacaux
ROUNDWOOD	ROLLIZOS	RONDINS
RUTILE SAND	RUTILO, ARENA DE	SABLE DE RUTILE
Safflower seed, expelled	Cártamo, semillas de, prensadas	Graines de carthame, triturées
Safflower seed, extracted	Cártamo, semillas de, en extracto	Graines de carthame, sous-produits de l'extraction
SALT	SAL	SEL
SALT CAKE	SAL, TORTAS DE	PAIN DE SEL
SALT ROCK	SAL GEMA	ROCHE SALINE
Saltpetre	Salitre	Salpêtre
SAND	ARENA	SABLE
Sand, ilmenite	Arena de ilmenita	Sable, ilménite
Sand, zircon	Arena de circonio	Sable, zircon
Spodumene	Espodumeno	Spoduméne
SAND, HEAVY MINERAL	ARENAS DE MINERALES PESADOS	SABLE, MINÉRAUX LOURDS
SAWDUST	SERRÍN	SCIURE DE BOIS
SAW LOGS	TRONCOS PARA ASERRAR	BOIS DÉBITÉ
SCALE GENERATED FROM THE IRON AND STEEL MAKING PROCESS	CASCARILLA GENERADA EN LOS PROCESOS SIDERÚRGICOS	DÉPÔTS PROVENANT DE LA FABRICATION DU FER ET DE L'ACIER
SCRAP METAL	CHATARRA	FERRAILLE
SEED CAKE, containing vegetable oil UN 1386 (a) mechanically expelled seeds, containing more than 10% of oil or more than 20% of oil and moisture content	TORTA DE SEMILLAS, con una proporción de aceite vegetal, No ONU 1386 a) residuos de semillas prensadas por medios mecánicos, con un contenido de más del 10 % de aceite o más del 20 % de aceite y humedad combinados	TOURTEAUX contenant de l'huile végétale UN 1386 a) Graines triturées par procédé mécanique contenant plus de 10% d'huile ou plus de 20% d'huile et d'humidité combinées

英語	西班牙語	法語
SEED CAKE, containing vegetable oil UN 1386 (b) solvent extraction and expelled seeds, containing not more than 10% of oil and when the amount of moisture is higher than 10%, not more than 20% of oil and moisture combined	TORTA DE SEMILLAS, con una proporción de aceite vegetal, No ONU 1386 b) residuos de la extracción del aceite de las semillas con disolventes o por prensado, con un contenido de no más del 10 % de aceite o, si el contenido de humedad es superior al 10 %, no más del 20 % de aceite y humedad combinados	TOURTEAUX contenant de l'huile végétale UN 1386 b) Sous-produits de l'extraction au solvant ou graines triturées contenant au maximum 10 % d'huile et, si la teneur en humidité est supérieure à 10 %, pas plus de 20 % d'huile et d'humidité combinées
SEED CAKE UN 2217	TORTA DE SEMILLAS, No ONU 2217	TOURTEAUX UN 2217
SEED CAKE (non-hazardous)	TORTA DE SEMILLAS (no entraña riesgos)	TOURTEAUX (non dangereux)
Seed expellers, oily	Semillas oleosas, torta de presión de	Expellers oléagineux
SILICOMANGANESE	SILICOMANGANESO	SILICOMANGANÈSE
SILICON SLAG	ESCORIA DE SILICIO	SCORIES DE SILICIUM
SILVER LEAD CONCENTRATE	PLATA Y PLOMO, CONCENTRADO DE	CONCENTRÉ DE PLOMB ARGENTIFÈRE
Silver lead ore concentrate	Plata y plomo, concentrado de mineral de	Concentré de minerai de plomb argentifère
Sinter	Sinterizado	Agglomérés
Slag, granulated	Escoria granulada	Scories, en grains
SLIG, iron ore	SLIG (mineral de hierro)	SLIG (minerai de fer)
SODA ASH	SOSA, CENIZA DE	SOUDE DU COMMERCE
SODIUM NITRATE UN 1498	NITRATO SÓDICO, No ONU 1498	NITRATE DE SODIUM UN 1498
SODIUM NITRATE AND POTASSIUM NITRATE MIXTURE UN 1499	NITRATO SÓDICO Y NITRATO POTÁSICO, EN MEZCLA, No ONU 1499	NITRATE DE SODIUM ET NITRATE DE POTASSIUM EN MÉLANGE UN 1499
Soyabean, expelled	Soja, prensada	Graines de soja, triturées
Soyabean, extracted	Soja, en extracto	Graines de soja, sous-produits de l'extraction
SOLIDIFIED FUELS RECYCLED FROM PAPER AND PLASTICS	COMBUSTIBLES SOLIDIFICADOS RECICLADOS DE PAPELES Y PLÁSTICOS	COMBUSTIBLES SOLIDIFIÉS RECYCLÉ À PARTIR DE PAPIER ET DE PLASTIQUE
SPENT CATHODES	CÁTODOS AGOTADOS	CATHODES USÉES
SPENT POTLINER	CUBAS ELECTROLÍTICAS AGOTADAS	REVÊTEMENT USÉ DES CUVES
SPODUMENE (UPGRADED)	ESPODÚMENO (ENRIQUECIDO)	SPODUMÈNE (ENRICHI)



英語	西班牙語	法語
STAINLESS STEEL GRINDING DUST	ACERO INOXIDABLE, POLVO DEL RECTIFICADO DE	ACIER INOXYDABLE, POUSSIÈRE DE MEULAGE
Steel swarf	Acero, virutas de	Rognures d'acier
Stibnite	Estibina	Stibnite
STONE CHIPPINGS	GRAVILLA	PIERRES CONCASSÉES
Strussa pellets	Strussa, pellets de	Strussa en boulettes
SUGAR	AZÚCAR	SUCRE
SULPHATE OF POTASH AND MAGNESIUM	SULFATO DE POTASA Y MAGNESIO	SULFATE DE POTASSIUM ET DE MAGNÉSIUM
Sulphide concentrates	Sulfuros, concentrados de	Concentrés sulfurés
SULPHUR UN 1350 (crushed lump and coarse grained)	AZUFRE, No ONU 1350 (en terrones triturados o en polvo de grano grueso)	SOUFRE UN 1350 (concassé en morceaux et en poudre à gros grains)
SULPHUR (formed, solid)	AZUFRE (sólido con forma)	SOUFRE (solide, moulé)
Sunflower seed, expelled	Girasol, semillas de, prensadas	Graines de tournesol, triturées
Sunflower seed, extracted	Girasol, semillas de, en extracto	Graines de tournesol, sous-produits de l'extraction
SUPERPHOSPHATE	SUPERFOSFATO	SUPERPHOSPHATE
SUPERPHOSPHATE (triple, granular)	SUPERFOSFATO (triple granular)	SUPERPHOSPHATE (triple, granuleux)
Swarf	Virutas	Rognures
TACONITE PELLETS	TACONITA, PELLETS DE	TACONITE EN PELLETS
TALC	TALCO	TALC
TANKAGE	DESECHOS ORGÁNICOS	DÉCHETS ORGANIQUES
Tankage fertilizer	Fertilizante orgánico	Engrais à base de déchets organiques
TAPIOCA	TAPIOCA	TAPIOCA
TIMBER	MADERAJE	BILLES DE BOIS
Toasted meals	Harinas tostadas	Farines grillées
Triple superphosphate	Superfosfato triple	Superphosphate triple
UREA	UREA	URÉE
VANADIUM ORE	VANADIO, MINERAL DE	MINERAI DE VANADIUM
VERMICULITE	VERMICULITA	VERMICULITE
WHITE QUARTZ	CUARZO BLANCO	QUARTZ BLANC
WOODCHIPS	MADERA, ASTILLAS DE	COPEAUX DE BOIS

英語	西班牙語	法語
WOOD PELLETS CONTAINING ADDITIVES AND/OR BINDERS	PELETS DE MADERA QUE CONTIENEN ADITIVOS Y/O AGLUTINANTES	GRANULÉS (PELETS) DE BOIS CONTENANT DES ADDITIFS OU LIANTS
WOOD PELLETS NOT CONTAINING ANY ADDITIVES AND/OR BINDERS	PELETS DE MADERA QUE NO CONTIENEN ADITIVOS NI AGLUTINANTES	GRANULÉS (PELETS) DE BOIS NE CONTENANT AUCUN ADDITIF OU LIANT
Wood Products – General	Productos generales de madera	Produits du bois – Généralités
WOOD TORREFIED	MADERA TORRADA	BOIS TORRÉFIÉ
ZINC AND LEAD CALCINES (mixed)	CINC Y PLOMO, CALCINADOS DE (en mezclas)	ZINC ET PLOMB CALCINÉS (en mélange)
ZINC AND LEAD MIDDINGS	CINC Y PLOMO, MIXTOS DE	MIXTES DE ZINC ET DE PLOMB
ZINC ASHES UN 1435	CINC, CENIZAS DE, No ONU 1435	CENDRES DE ZINC UN 1435
ZINC CONCENTRATE	CINC, CONCENTRADO DE	CONCENTRÉ DE ZINC
Zinc, dross, residue or skimmings	Cinc (escoria de, residuos de o espuma de)	Zinc, crasses, résidus, laitier
Zinc ore, burnt	Cinc, mineral quemado de	Minerai de zinc, brûlé
Zinc ore, calamine	Cinc, mineral de, calamina	Minerai de zinc, calamine
Zinc ore, concentrates	Cinc, mineral de, concentrados	Minerai de zinc, concentrés
Zinc ore, crude	Cinc, mineral de, bruto	Minerai de zinc, brut
ZINC SINTER	CINC SINTERIZADO	AGGLOMÉRÉS DE ZINC
ZINC SLAG	CINC, ESCORIA DE	SCORIES DE ZINC
ZINC SLUDGE	CINC, FANGOS DE	BOUES DE ZINC
Zinc sulphide	Sulfuro de cinc	Sulfure de zinc
Zinc sulphide (blende)	Sulfuro de cinc (blenda)	Sulfure de zinc (blende)
ZIRCON KYANITE CONCENTRATE	CONCENTRADO DE CIANITA DE CIRCONIO	CONCENTRÉ DE KYANITE ET DE ZIRCON
ZIRCONSAND	CIRCONIO, ARENA DE	SABLE DE ZIRCON



**RESOLUTION MSC.393(95)**  
**(adopted on 11 June 2015)**

**AMENDMENTS TO THE INTERNATIONAL MARITIME  
SOLID BULK CARGOES (IMSBC) CODE**

THE MARITIME SAFETY COMMITTEE,

RECALLING Article 28(b) of the Convention on the International Maritime Organization concerning the functions of the Committee,

NOTING resolution MSC.268(85) by which it adopted the International Maritime Solid Bulk Cargoes Code ("the IMSBC Code"), which has become mandatory under chapter VI of the International Convention for the Safety of Life at Sea, 1974, as amended ("the Convention"),

NOTING ALSO article VIII(b) and regulation VII/1.1 of the Convention concerning amendment procedure for amending the IMSBC Code,

HAVING CONSIDERED, at its ninety-fifth session, amendments to the IMSBC Code, proposed and circulated in accordance with article VIII(b)(i) of the Convention,

1 ADOPTS, in accordance with article VIII(b)(iv) of the Convention, amendments to the IMSBC Code, the text of which is set out in the annex to the present resolution;

2 DETERMINES, in accordance with article VIII(b)(vi)(2)(bb) of the Convention, that the said amendments shall be deemed to have been accepted on 1 July 2016, unless prior to that date, more than one third of the Contracting Governments to the Convention or Contracting Governments the combined merchant fleets of which constitute not less than 50% of the gross tonnage of the world's merchant fleet, have notified their objections to the amendments;

3 INVITES Contracting Governments to the Convention to note that, in accordance with article VIII(b)(vii)(2) of the Convention, the amendments shall enter into force on 1 January 2017 upon their acceptance in accordance with paragraph 2 above;

4 AGREES that Contracting Governments to the Convention may apply the aforementioned amendments in whole or in part on a voluntary basis as from 1 January 2016;

5 REQUESTS the Secretary-General, for the purpose of article VIII(b)(v) of the Convention, to transmit certified copies of the present resolution and the text of the amendments contained in the annex to all Contracting Governments to the Convention; and

6 FURTHER REQUESTS the Secretary-General to transmit copies of this resolution and its annex to Members of the Organization, which are not Contracting Governments to the Convention.

**ANNEX****AMENDMENTS TO THE INTERNATIONAL MARITIME  
SOLID BULK CARGOES (IMSBC) CODE****Contents**

- 1 At the end, a new entry "appendix 5" is added with the following:  
"Appendix 5 Bulk Cargo Shipping Names in three languages (English, Spanish and French)"

**Section 1  
General provisions****1.4 Application and implementation of this Code**

- 2 In paragraph 1.4.2, the following entries are inserted in the corresponding order:  
"Paragraph 4.2.2.2;"  
"Section 14 Prevention of pollution by cargo residues from ships;"
- 3 In the existing paragraph 1.4.2, the line for "Appendices other than appendix 1 Individual schedules of solid bulk cargoes; and" is replaced with the following:  
"Appendices other than appendix 1 (Individual schedules of solid bulk cargoes) and appendix 5 (Bulk Cargo Shipping Names in three languages (English, Spanish and French)); and"

**1.6 Conventions**

- 4 In the body of paragraph 1.6, at the end of the first sentence, the words "are reproduced in full" are replaced by the words "the relevant parts are reproduced below".

**Chapter VI  
Carriage of cargoes**

- 5 The title of chapter VI is replaced by the following:

**"Carriage of cargoes and oil fuels"****Part A  
General provisions****Regulation 1  
Application**

- 6 At the beginning of paragraph 1, the words "Unless expressly provided otherwise," are added and the existing word "This" is replaced by the word "this".

## 1.7 Definitions

7 In the definition for "*Manual of Tests and Criteria*", replace the words (ST/SG/AC.10/11/Rev.5/Amendment 1) by the words "(ST/SG/AC.10/11/Rev.5/Amendment 2)".

### Section 3 *Safety of personnel and ship*

#### 3.1 General requirements

8 After the existing paragraph 3.1.1, insert a new paragraph 3.1.2 with the following:

"3.1.2 Routine on board operational fire safety risk assessments shall be carried out by the ship's crew for cargo handling areas on self-unloading bulk carriers featuring internally installed conveyor systems within the ship's structure. Due consideration shall be given to fire prevention and the effective operation of fire detection systems, containment and suppression under all anticipated operating conditions and cargoes. The fire safety risk assessments shall be detailed in the ship's Safety Management System (SMS) together with a recommended timing to provide regular assessments."

and the existing paragraph 3.1.2 is renumbered as 3.1.3.

### Section 4 *Assessment of acceptability of consignments for safe shipment*

#### 4.2 Provision of information

9 The existing paragraph 4.2.2 is renumbered as "4.2.2.1" and the following new paragraph "4.2.2.2" is added:

"4.2.2.2 The cargo information should include whether or not the cargo is harmful to the marine environment\*."

10 In paragraph 4.2.3, in the "Form for cargo information for Solid Bulk Cargoes", after the row for that describes Group of the cargo, the following rows are inserted:

<p>"</p> <p>Classification relating to MARPOL Annex V</p> <p><input type="checkbox"/> harmful to the marine environment</p> <p><input type="checkbox"/> not harmful to the marine environment</p> <p>"</p>
--

**Section 7**  
**Cargoes that may liquefy**

**7.3 Provisions for cargoes that may liquefy**

**7.3.1 General**

11 The existing paragraphs 7.3.1.1 to 7.3.1.4 are replaced by the following:

"7.3.1.1 Concentrates or other cargoes which may liquefy shall only be accepted for loading when the actual moisture content of the cargo is less than its TML. Notwithstanding this provision, cargoes having moisture content in excess of the TML may be carried on a specially constructed or fitted cargo ship for confining cargo shift specified in paragraph 7.3.2.

7.3.1.2 Notwithstanding the provisions in section 1.4 of this Code, the requirements in sections 4.2.2.9, 4.2.2.10, 4.3.2 to 4.3.5, 4.5, 4.6 and 8 of this Code need not apply to a cargo which may liquefy provided that the cargo is carried on a specially constructed or fitted cargo ship for confining cargo shift specified in paragraph 7.3.2 or on a specially constructed ship for dry powdery cargoes specified in paragraph 7.3.3.

7.3.1.3 Cargoes which contain liquids other than packaged canned goods or the like shall not be stowed in the same cargo space above or adjacent to these solid bulk cargoes.

7.3.1.4 Adequate measures shall be taken to prevent liquids entering the cargo space in which these solid bulk cargoes are stowed during the voyage.

7.3.1.5 Masters shall be cautioned about the possible danger of using water to cool these cargoes while the ship is at sea. Introducing water may bring the moisture content of these cargoes to a flow state. When necessary, due regard shall be paid to apply water in the form of spray."

**7.3.2 Specially constructed or fitted cargo ships**

12 The existing subsection 7.3.2 is replaced by the following:

**"7.3.2 Specially constructed or fitted cargo ships for confining cargo shift**

7.3.2.1 Specially constructed cargo ships for confining cargo shift shall have permanent structural boundaries, so arranged as to confine any shift of cargo to an acceptable limit. The ship concerned shall carry evidence of approval by the Administration.

7.3.2.2 Specially fitted cargo ships for confining cargo shift shall be fitted with specially designed portable divisions to confine any shift of cargo to an acceptable limit. Specially fitted cargo ships shall be in compliance with the following requirements:

- .1 The design and positioning of such special arrangements shall adequately provide not only the restraint of the immense forces generated by the flow movement of high-density bulk cargoes, but also for the need to reduce to an acceptable safe level the potential heeling movements arising out of a transverse cargo flow across the

cargo space. Divisions provided to meet these requirements shall not be constructed of wood.

- .2 The elements of the ship's structure bounding such cargo shall be strengthened, as necessary.
- .3 The plan of special arrangements and details of the stability conditions on which the design has been based shall have been approved by the Administration. The ship concerned shall carry evidence of approval by the Administration.

7.3.2.3 A submission made to an Administration for approval of such a ship shall include:

- .1 relevant structural drawings, including scaled longitudinal and transverse sections;
- .2 stability calculations, taking into account loading arrangements and possible cargo shift, showing the distribution of cargo and liquids in tanks, and of cargo which may become fluid; and
- .3 any other information which may assist the Administration in the assessment of the submission."

13 Add the following new subsection 7.3.3:

"7.3.3 Specially constructed cargo ships for dry powdery cargoes

7.3.3.1 Specially constructed cargo ships for dry powdery cargoes shall be designed and constructed to:

- .1 carry solely dry powdery cargoes; and
- .2 handle cargoes by means of closed type systems using pneumatic equipment which prevent the cargo from the exposure to weather.

7.3.3.2 The ship concerned shall carry evidence of approval by the Administration."

## **Section 8**

### **Test procedures for cargoes that may liquefy**

#### **8.1 General**

14 In the end of paragraph "8.1", the words "unless the cargo is carried in a specially constructed or fitted ship" are deleted.

## **Section 9**

### **Materials possessing chemical hazards**

#### **9.2.3. Materials hazardous only in bulk (MHB)**

##### **9.2.3.1 General**

15 After the existing paragraph 9.2.3.1.3, two new paragraphs 9.2.3.1.4 and 9.2.3.1.5 are added with the following:

"9.2.3.1.4 Although the chemical hazards are intended to be closely defined in order to establish a uniform approach to MHB classification, where human experience or other factors indicate the need to consider other chemical hazards, these shall always be taken into account. Where deviations from the chemical hazards described in 9.2.3.2 to 9.2.3.7, have been recognized (Other hazards (OH)), they shall be properly recorded with justifications. Other hazards are to be included in the section for "Hazard" in the individual schedule.

9.2.3.1.5 A notational reference shall accompany the MHB designation in the "Class" cell of the Characteristics table for each individual schedule for cargoes classified as MHB. When a material possesses one or more of the chemical hazards as defined below, the notational reference for each hazard shall be included in the "Class" cell. A summary of the notational references is presented in the table below:

Chemical Hazard	Notational Reference
Combustible solids	CB
Self-heating solids	SH
Solids that evolve flammable gas when wet	WF
Solids that evolve toxic gas when wet	WT
Toxic solids	TX
Corrosive solids	CR
Other hazards	OH

and amend the following subsection headings under 9.2.3 as follows:

**"9.2.3.2 Combustible solids: MHB (CB)**

**9.2.3.3 Self-heating solids: MHB (SH)**

**9.2.3.4 Solids that evolve flammable gas when wet: MHB (WF)**

**9.2.3.5 Solids that evolve toxic gas when wet: MHB (WT)**

**9.2.3.6 Toxic solids: MHB (TX)**

**9.2.3.7 Corrosive solids: MHB (CR)"**

**9.2.3.7 Corrosive solids**

16 In paragraph 9.2.3.7.3, replace the reference "ISO 3574:199" by the reference "ISO 3574:1999".

### 9.3 Stowage and segregation requirements

#### 9.3.3 Segregation between bulk materials possessing chemical hazards and dangerous goods in packaged form

17 The second paragraph of the existing paragraph 9.3.3.1, before the table, is numbered as "9.3.3.2".

## Section 13

### References to related information and recommendations

#### 13.1 General

18 In paragraph 13.1, after the words "IMO Instruments", insert the words "and other international standards (such as ISO, IEC)".

#### 13.2 Reference list

19 In paragraph 13.2, after the words "IMO Instruments", in the first sentence, insert the words "or standard"; and, in the third sentence of the paragraph, after the words "IMO Instruments", insert the words "or reference standard".

20 In the heading of the table, in column "Reference to the relevant IMO instruments (2)", add the words "or standard" after the words "IMO instruments".

#### 13.2.3 Fire-extinguishing arrangements

21 Under section 13.2.3 of the table, insert a new second row with the following:

General Group B	FSS Code chapter 5	Fixed Gas Fire-Extinguishing Systems
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and under section 13.2.3 of the table, in the column "Reference to the relevant IMO instruments (2)", for entry "Groups A, B and C", replace the text with "MSC/Circ.1395/Rev.2; and, in the column "Subject (3)", after the words "may be exempted", add the words "or for which a fixed gas fire-extinguishing system is ineffective".

#### 13.2.4 Ventilation

22 Under section 13.2.4 of the table, at the end of the section, insert three new rows with the following:

General Group B	MSC.1/Circ.1434	Unified Interpretation of SOLAS II-2/19.3.4
General Group B	MSC.1/Circ.1120	Unified Interpretation of SOLAS including II-2/19.3.2, 19.3.4 and 19.3.4.2
General Group B	IEC 60092-506	Electrical standards for equipment safe for use in an explosive atmosphere

**13.2.6 Gas detection**

23 Under section 13.2.6 of the table, in the column "Reference to the relevant IMO instruments (2)", the words "section 3" are replaced by "as amended by MSC.1/Circ.1396",

and, at the end of the section, insert a new row with the following:

General	IEC 60092-506	Electrical standards for equipment safe for use in an explosive atmosphere
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**13.2.10 Segregation**

24 Under section 13.2.10 of the table, at the end of the section, insert a new row with the following:

Group B	IEC 60092-352	Standards for electrical cable penetrations in boundaries
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**13.2.12 Entering enclosed spaces**

25 Under section 13.2.12 of the table, in the column "Reference to the relevant IMO instruments (2)", amend the text to read "resolution A.1050(27), 30 November 2011"; and in the column "Subject (3)", amend the title to read "Revised recommendations for entering enclosed spaces aboard ships".

**13.2.13 Avoidance of excessive stresses**

26 Under section 13.2.13 of the table, at the end of the section, insert two new rows with the following:

2.1.2	Resolution A.862(20), as amended	Code of Practice for the Safe Loading and Unloading of Bulk Carriers (BLU Code)
2.1.2	MSC.1/Circ.1357	Additional Considerations for the Safe Loading of Bulk Carriers

27 A new "Section 14" is added with the following texts:

**"Section 14  
Prevention of pollution by cargo residues from ships**

14.1 The provisions of this section address the management of residues of solid bulk cargoes, in relation to the *2012 Guidelines for the implementation of MARPOL Annex V* (resolution MEPC.219(63), as amended) (the Guidelines). In accordance with MARPOL Annex V, the management of the residues of solid bulk cargoes depends primarily on the classification of a solid bulk cargo as to whether it is harmful to the marine environment (HME) or non-HME. The responsibility for classifying and declaring, whether a solid bulk cargo is HME or non-HME, lies with the shipper as per section 3.4 of the Guidelines. The information in this section is provided in order to assist users of the IMSBC Code.



14.2 The Guidelines assist with the implementation of requirements in MARPOL Annex V. The text of the Guidelines, relevant to residues of solid bulk cargoes is reproduced below. The Guidelines may be amended after the adoption of this version of the IMSBC Code, and the latest version of the Guidelines should always be referred to.

## "2012 GUIDELINES FOR THE IMPLEMENTATION OF MARPOL ANNEX V

### PREFACE

(Not reproduced.)

### 1 INTRODUCTION

1.1 The revised MARPOL Annex V with an entry into force date of 1 January 2013, prohibits the discharge of all types of garbage into the sea unless explicitly permitted under the Annex. These guidelines have been developed taking into account the regulations set forth in Annex V, as amended, of the International Convention for the Prevention of Pollution from Ships, (MARPOL) (hereinafter referred to as the "Convention"). The purpose of these guidelines is to provide guidance to governments, shipowners, ship operators, ships' crews, cargo owners, port reception facility operators and equipment manufacturers. The guidelines are divided into the following six sections that provide a general framework upon which governments can formulate programmes:

- Introduction;
- Garbage management;
- Management of cargo residues of solid bulk cargoes;
- Training, education and information;
- Port reception facilities for garbage; and
- Enhancement of compliance with MARPOL Annex V.

1.2 Under the revised MARPOL Annex V, discharge of all garbage is now prohibited, except as specifically permitted in regulations 3, 4, 5 and 6 of MARPOL Annex V. MARPOL Annex V reverses the historical presumption that garbage may be discharged into the sea based on the nature of the garbage and defined distances from shore. Regulation 7 provides limited exceptions to these regulations in emergency and non-routine situations. Generally, discharge is restricted to food wastes, identified cargo residues, animal carcasses, and identified cleaning agents and additives and cargo residues entrained in wash water which are not harmful to the marine environment. It is recommended that ships use port reception facilities as the primary means of discharge for all garbage.

1.3 Recognizing that the MARPOL Annex V regulations continue to restrict the discharge of garbage into the sea, require garbage management for ships, and that garbage management technology continues to evolve, it is recommended that governments and the Organization continue to gather information and review these guidelines periodically.

1.4 (Not reproduced.)

1.5 (Not reproduced.)

### 1.6 Definitions

(Not reproduced.)

## **1.7 Application**

1.7.1 This section provides clarification as to what should and should not be considered garbage under MARPOL Annex V.

1.7.2 (Not reproduced.)

1.7.3 (Not reproduced.)

1.7.4 While cleaning agents and additives contained in hold washwater, and deck and external surface washwater are considered "operational wastes" and thus "garbage" under Annex V, these cleaning agents and additives may be discharged into the sea so long as they are not harmful to the marine environment.

1.7.5 A cleaning agent or additive is considered not harmful to the marine environment if it:

- .1 is not a "harmful substance" in accordance with the criteria in MARPOL Annex III; and
- .2 does not contain any components which are known to be carcinogenic, mutagenic or reprotoxic (CMR).

1.7.6 The ship's record should contain evidence provided by the producer of the cleaning agent or additive that the product meets the criteria for not being harmful to the marine environment. To provide an assurance of compliance, a dated and signed statement to this effect from the product supplier would be adequate for the purposes of a ship's record. This might form part of a Safety Data Sheet or be a stand-alone document but this should be left to the discretion of the producer concerned.

1.7.7 (Not reproduced.)

1.7.8 (Not reproduced.)

## **2 GARBAGE MANAGEMENT**

### **2.1 Waste Minimization**

2.1.1 All shipowners and operators should minimize taking on board material that could become garbage. Ship-specific garbage minimization procedures should be included in the Garbage Management Plan. It is recommended that manufacturers, cargo owners, ports and terminals, shipowners and operators and governments consider the management of garbage associated with ships' supplies, provisions, and cargoes as needed to minimize the generation of garbage in all forms.

2.1.2 (Not reproduced.)

2.1.3 (Not reproduced.)

2.1.4 (Not reproduced.)

### **2.2 Fishing gear** (Not reproduced.)

### 2.3 Shipboard garbage handling (collection, processing, storage, discharge)

2.3.1 Regulation 3 of MARPOL Annex V provides that the discharge of garbage into the sea is prohibited, with limited exceptions, as summarized in table 1. Under certain conditions discharge into the sea of food wastes, animal carcasses, cleaning agents and additives contained in hold washwater, deck and external surface washwater and cargo residues which are not considered to be harmful to the marine environment is permitted.

**TABLE 1 – SUMMARY OF RESTRICTIONS TO THE DISCHARGE OF GARBAGE INTO THE SEA UNDER REGULATIONS 4, 5 AND 6 OF MARPOL ANNEX V (Not fully reproduced)**

(Note: Table 1 is intended as a summary reference. The provisions in MARPOL Annex V, not table 1, prevail.)

Garbage type <sup>1</sup>	All ships except platforms <sup>4</sup>		Offshore platforms located more than 12 nm from nearest land and ships when alongside or within 500 metres of such platforms <sup>4</sup> Regulation 5
	Outside special areas Regulation 4 (Distances are from the nearest land)	Within special areas Regulation 6 (Distances are from nearest land or nearest ice-shelf)	
Cargo residues <sup>5, 6</sup> not contained in washwater	≥ 12 nm, en route and as far as practicable	Discharge prohibited	Discharge prohibited
Cargo residues <sup>5, 6</sup> contained in washwater		≥ 12 nm, en route and as far as practicable (subject to conditions in regulation 6.1.2)	
Cleaning agents and additives <sup>9</sup> contained in cargo hold washwater	Discharge permitted	≥ 12 nm, en route and as far as practicable (subject to conditions in regulation 6.1.2)	Discharge prohibited
Cleaning agents and additives <sup>9</sup> in deck and external surfaces washwater		Discharge permitted	

<sup>1</sup> When garbage is mixed with or contaminated by other harmful substances prohibited from discharge or having different discharge requirements, the more stringent requirements shall apply.

<sup>4</sup> (not reproduced).

<sup>5</sup> Cargo residues means only those cargo residues that cannot be recovered using commonly available methods for unloading.

<sup>6</sup> These substances must not be harmful to the marine environment.

2.3.2 (Not reproduced.)

2.3.3 (Not reproduced.)

2.3.4 (Not reproduced.)

**2.4 Collection**

(Not reproduced.)

**2.5 Processing**

(Not reproduced.)

**2.6 Storage**

(Not reproduced.)

**2.7 Discharge**

(Not reproduced.)

**2.8 Shipboard equipment for processing garbage**

(Not reproduced.)

**2.9 Grinding or comminution**

(Not reproduced.)

**2.10 Compaction**

(Not reproduced.)

**2.11 Incineration**

(Not reproduced.)

**2.12 Treatment of animal carcasses**

(Not reproduced.)

**2.13 Discharge of fish carried as a cargo**

(Not reproduced.)

**3 MANAGEMENT OF CARGO RESIDUES OF SOLID BULK CARGOES**

3.1 Cargo residues are included in the definition of garbage within the meaning of MARPOL Annex V, regulation 1.9 and may be discharged in accordance with regulations 4.1.3 and 6.1.2. However, cargo material contained in the cargo hold bilge water should not be treated as cargo residues if the cargo material is not harmful to the marine environment and the bilge water is discharged from a loaded hold through the ship's fixed piping bilge drainage system.

3.2 Cargo residues are considered harmful to the marine environment and subject to regulations 4.1.3 and 6.1.2.1 of the MARPOL Annex V if they are residues of solid bulk substances which are classified according to the criteria of the United Nations Globally Harmonized System for Classification and Labelling of Chemicals (UN GHS) meeting the following parameters<sup>1</sup>:

- .1 Acute Aquatic Toxicity Category 1; and/or
- .2 Chronic Aquatic Toxicity Category 1 or 2; and/or
- .3 Carcinogenicity<sup>2</sup> Category 1A or 1B combined with not being rapidly degradable and having high bioaccumulation; and/or
- .4 Mutagenicity<sup>2</sup> Category 1A or 1B combined with not being rapidly degradable and having high bioaccumulation; and/or

- .5 Reproductive Toxicity<sup>2</sup> Category 1A or 1B combined with not being rapidly degradable and having high bioaccumulation; and/or
- .6 Specific Target Organ Toxicity Repeated Exposure<sup>2</sup> Category 1 combined with not being rapidly degradable and having high bioaccumulation; and/or
- .7 Solid bulk cargoes containing or consisting of synthetic polymers, rubber, plastics, or plastic feedstock pellets (this includes materials that are shredded, milled, chopped or macerated or similar materials).

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Notes:

1) The criteria are based on UN GHS, fourth revised edition (2011). For specific products (e.g. metals and inorganic metal compounds) guidance available in UN GHS, annexes 9 and 10 are essential for proper interpretation of the criteria and classification and should be followed.

2) Products that are classified for Carcinogenicity, Mutagenicity, Reproductive toxicity or Specific Target Organ Toxicity Repeated Exposure for oral and dermal hazards or without specification of the exposure route in the hazard statement.

3.3 Cargo residues that are harmful to the marine environment may require special handling not normally provided by reception facilities. Ports and terminals receiving such cargoes should have adequate reception facilities for all relevant residues, including when contained in washwater.

3.4 Solid bulk cargoes should be classified and declared by the shipper as to whether or not they are harmful to the marine environment. Such declaration should be included in the information required in section 4.2 of the IMSBC Code.

3.5 Ports, terminals and ship operators should consider cargo loading, unloading and onboard handling practices<sup>1</sup> in order to minimize production of cargo residues. Cargo residues are created through inefficiencies in loading, unloading, onboard handling. Options that should be considered to decrease the amount of such garbage include the following:

- .1 ensuring ships are suitable to carry the intended cargo and also suitable for unloading the same cargo using conventional unloading methods;
- .2 unloading cargo as efficiently as possible, utilizing all appropriate safety precautions to prevent injury or ship and equipment damage and to avoid or minimize cargo residues; and
- .3 minimizing spillage of the cargo during transfer operations by carefully controlling cargo transfer operations, both on board and from dockside. This should include effective measures to enable immediate communications between relevant ship and shore-based personnel during the transfer operations and when feasible, enclosure of conveyance devices such as conveyor belts. Since this spillage typically occurs in port, it should be completely cleaned up immediately following the loading and unloading event and handled as cargo; delivering it into the intended cargo space or into the appropriate unloading holding area.

3.6 When the master, based on the information received from the relevant port authorities, determines that there are no adequate reception facilities at either the port of departure or the port of destination in the case where both ports are situated within the same special area, the condition under regulation 6.1.2.3 should be considered satisfied.

3.7 MARPOL Annex V, regulation 6.1.2 also applies when the "port of departure" and the "next port of destination" is the same port. To discharge cargo hold washwater in this situation, the ship must be en route and the discharge must take place not less than 12 miles from the nearest land.

**4 TRAINING, EDUCATION AND INFORMATION**

(Not reproduced.)

**5 PORT RECEPTION FACILITIES FOR GARBAGE**

(Not reproduced.)

**6 ENHANCEMENT OF COMPLIANCE WITH MARPOL ANNEX V**

(Not reproduced.)

**APPENDIX 1*****Individual schedules of solid bulk cargoes*****Amendments to existing individual schedules****ALFALFA**

28 In the individual schedule for "ALFALFA", under the section for "Loading", in the first sentence, replace the words "of the Code" by the words "of this Code".

**ALUMINA HYDRATE**

29 In the individual schedule for "ALUMINA HYDRATE", under the section for "Weather precautions", in the first paragraph, the words "specially constructed or fitted cargo" are deleted.

**CLINKER ASH, WET**

30 In the bulk cargo shipping name, the word "WET", is deleted. Under the section for "Description", the third sentence "Insoluble in water." is replaced by the following:

"This cargo can be classified into wet type, which is taken out using water, and dry type, which is taken out under dry condition."

and under the section for "Weather precautions", in the first paragraph, the words "specially constructed or fitted cargo" are deleted. After the reference "7.3.2", insert the words "or a ship complying with the requirements in subsection 7.3.3".

**COAL**

31 In the individual schedule for "COAL", under the section for "Weather precautions", in the first paragraph, the words "specially constructed or fitted cargo" are deleted

**COAL SLURRY**

32 In the section for "Weather precautions", in the first paragraph, the words "specially constructed or fitted cargo" are deleted.

**COKE BREEZE**

33 In the section for "Weather precautions", in the first paragraph, the words "specially constructed or fitted cargo" are deleted.

**FLUORSPAR**

34 In the section for "Weather precautions", in the first paragraph, the words "specially constructed or fitted cargo" are replaced by the word "a".

**FLY ASH, WET**

35 In the section for "Weather precautions", in the first paragraph, the words "specially constructed or fitted cargo" are replaced by the word "a".

**ILMENITE CLAY**

36 In the section for "Weather precautions", in the first paragraph, the words "specially constructed or fitted cargo" are replaced by the word "a".

**ILMENITE (UPGRADED)**

37 In the section for "Weather precautions", in the first paragraph, the words "specially constructed or fitted cargo" are deleted.

**IRON ORE**

38 Replace the existing individual schedule for "IRON ORE" by the following:

**"IRON ORE**

The provisions of this schedule shall apply to iron ore cargoes:

- .1 containing either:
  - .1 less than 10% of fine particles less than 1 mm ( $D_{10} > 1$  mm); or
  - .2 less than 50% of particles less than 10 mm ( $D_{50} > 10$  mm); or
  - .3 both; or
- .2 iron ore fines where the total goethite content is 35% or more by mass, provided the master receives from the shipper a declaration of the goethite content of the cargo which has been determined according to internationally or nationally accepted standard procedures.

**Description**

Iron ore varies in colour from dark grey to rusty red. It varies in iron content from haematite, (high grade ore) to ironstone of the lower commercial ranges. Mineral Concentrates are different cargoes (see IRON CONCENTRATE).

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	1,250 to 3,500	0.29 to 0.80
Size	Class	Group
Up to 250 mm	Not applicable	C



**Hazard**

No special hazards.  
This cargo is non-combustible or has a low fire-risk.  
Iron ore cargoes may affect magnetic compasses.

**Stowage & segregation**

No special requirements.

**Hold cleanliness**

No special requirements.

**Weather precautions**

No special requirement.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code. When the stowage factor of this cargo is equal or less than 0.56 m<sup>3</sup>/t, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be given to ensure that the tank top is not overstressed during the voyage and during loading by a pile of the cargo.

**Precautions**

Loading rates of this cargo are normally very high. Due consideration shall be given to the ballasting operation to develop the loading plan required by SOLAS regulation VI/7.3. Bilge wells shall be clean, dry and protected as appropriate to prevent ingress of the cargo.

**Ventilation**

No special requirements.

**Carriage**

No special requirements.

**Discharge**

No special requirements.

**Clean-up**

No special requirements."

**IRON ORE PELLETS**

39 In the individual schedule for "IRON ORE PELLETS", under "Precautions", delete the words "No special requirements".

**METAL SULPHIDE CONCENTRATES**

40 In the section for "Weather precautions", in the first paragraph, the words "specially constructed or fitted cargo" are replaced by the word "a".

**MINERAL CONCENTRATES**

41 In the section for "Weather precautions", in the first paragraph, the words "specially constructed or fitted cargo" are replaced by the word "a".

**NICKEL ORE**

42 In the section for "Weather precautions", in the first paragraph, the words "specially constructed or fitted cargo" are deleted.

**PEAT MOSS**

43 In the section for "Loading", the words "specially fitted or constructed ships (see subsection 7.3.2)" are replaced by the words "a ship complying with the requirements in subsection 7.3.2 of this Code".

**SAND, HEAVY MINERAL**

44 In the section for "Weather precautions", in the first paragraph, the words "specially constructed or fitted cargo" are deleted.

**WOOD PELLETS**

45 The existing individual schedule for "WOOD PELLETS" is deleted.

**New individual schedules**

46 Insert the following new individual schedules accordingly in alphabetical order:

**"ALUMINIUM FLUORIDE****Description**

Aluminium fluoride is a fine, white powder, odourless which presents itself dry. The cargo is not cohesive. The moisture content is less than 1%.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
32° to 35°	1,527	0.65
Size	Class	Group
Fine powder	Not applicable	A

**Hazard**

This cargo may liquefy if shipped at a moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of this Code.

The cargo may be slightly irritating to eyes and mucous membranes. In contact with acids, it develops toxic vapours of hydrogen fluoride. If involved in a fire, it may develop toxic fumes of hydrogen fluoride. This cargo is non-combustible or has a low fire-risk.

**Stowage & segregation**

No special requirements.

**Hold cleanliness**

No special requirements.

**Weather precautions**

When a cargo is carried in a ship other than a ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in paragraph 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

**Precautions**

Persons who may be exposed to the dust of the cargo shall wear protective clothing, goggles or other equivalent dust eye-protection and dust filter masks, as necessary.

**Ventilation**

No special requirements.

**Carriage**

The appearance of the surface of this cargo shall be checked regularly during voyage. If free water above the cargo or fluid state of the cargo is observed during voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsize of the ship, and give consideration to seeking emergency entry into a place of refuge.

**Discharge**

Maintain accommodation and equipment protected from dust.

**Clean-up**

Make sure that decks and holds are shovelled and swept clean before using water."

**"AMORPHOUS SODIUM SILICATE LUMPS**

This schedule shall apply only to amorphous sodium silicate lumps with molar ratio of silicon dioxide to sodium oxide ( $\text{SiO}_2/\text{Na}_2\text{O}$ ) greater than 3.2.

**Description**

Lumps. Colorless to green glassy solid.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	1,100 to 1,500	0.67 to 0.91
Size	Class	Group
Up to 100 mm	MHB (CR)	B

**Hazard**

Dust may cause skin and eye irritation.

This cargo is non-combustible or has a low fire-risk. This cargo is hygroscopic and will cake if wet.

**Stowage & segregation**

No special requirements.

**Hold cleanliness**

Clean and dry as relevant to the hazards of the cargo.

**Weather precautions**

This cargo shall be kept as dry as practicable. This cargo shall not be handled during precipitation. During handling of this cargo all non-working hatches of the cargo spaces into which this cargo is to be loaded shall be closed.

**Loading**

During loading, due consideration shall be given to minimize dust generation. Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

**Precautions**

Bilge wells shall be clean and dry and covered as appropriate to prevent ingress of the cargo.

Persons who may be exposed to the cargo shall wear protective clothing, goggles or other equivalent dust eye-protection and dust filter masks. Appropriate precautions shall be taken to protect machinery and accommodation spaces from the dust of the cargo.

**Ventilation**

The cargo spaces carrying this cargo shall not be ventilated during voyage.

**Carriage**

No special requirements.

**Discharge**

During discharge, due consideration shall be given to minimize dust generation. This cargo is hygroscopic and may cake in overhangs, impairing safety during discharge. If this cargo has hardened, it shall be trimmed to avoid the formation of overhangs, as necessary.

**Clean-up**

No special requirements.

**Emergency procedures**

<b>Special emergency equipment to be carried</b>
Nil
<b>Emergency procedures</b>
Nil
<b>Emergency action in the event of fire</b>
Nil
<b>Medical First Aid</b>
Refer to the Medical First Aid Guide (MFAG), as amended

**"BORIC ACID****Description**

A white free-flowing crystalline powder. Odourless and dry with not more than 1.0% moisture. Water soluble.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	544 to 862	1.16 to 1.84
Size	Class	Group
Fine crystalline powder, dry	MHB (TX)	B

**Hazard**

Mild irritation effects to nose and throat may occur from inhalation. May cause irritation to skin. May cause long-term health effects. This cargo is non-combustible. This cargo is hygroscopic and will cake if wet.

**Stowage & segregation**

"Separated from" metal hydrides and alkali metals.

**Hold cleanliness**

Clean and dry as relevant to the hazards of the cargo.

**Weather precautions**

This cargo shall be kept as dry as practicable. This cargo shall not be handled during precipitation. During handling of this cargo, all non-working hatches of the cargo spaces into which this cargo is loaded or to be loaded shall be closed.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

**Precautions**

Persons who may be exposed to the dust of the cargo shall wear protective clothing, goggles or other equivalent dust eye-protection and dust filter masks, as necessary.

**Ventilation**

No special requirements.

**Carriage**

No special requirements.

**Discharge**

No discharge operations during precipitation.

Boric acid is hygroscopic and may cake in overhangs, impairing safety during discharge. If this cargo has hardened, it shall be trimmed to avoid the formation of overhangs, as necessary.

**Clean-up**

Thorough dry cleaning to be carried out prior to washing all cargo spaces.

**Emergency procedures**

<b>Special emergency equipment to be carried</b> Nil.
<b>Emergency procedures</b> Nil.
<b>Emergency action in the event of fire</b> Nil.
<b>Medical First Aid</b> Refer to the <i>Medical First Aid Guide (MFAG)</i> , as amended.

**"CHEMICAL GYPSUM****Description**

Calcium sulphate hydrate generated as a product or by-product in the process of smelter and refinery, and polyaluminum chloride. White or brown powder without smell and insoluble. In use for Gypsum-Board and Cement.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	570 to 1,170	0.85 to 1.74
Size	Class	Group
40 µm to 1 mm	Not applicable	A

**Hazard**

This cargo may liquefy if shipped at a moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of this Code. This cargo is non-combustible or has a low fire-risk.

**Stowage & segregation**

No special requirements.

**Hold cleanliness**

No special requirements.

**Weather precautions**

When a cargo is carried in a ship other than a ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

**Precautions**

No special requirements.

**Ventilation**

No special requirements.

**Carriage**

The appearance of the surface of this cargo shall be checked regularly during voyage. If free water above the cargo or fluid state of the cargo is observed during voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsizing of the ship, and give consideration to seeking emergency entry into a place of refuge.

**Discharge**

No special requirements.

**Clean-up**

Prior to washing out the residues of this cargo, the decks and the cargo spaces shall be shovelled and swept clean, because washing out of this cargo is difficult."

**"COPPER SLAG****Description**

Residue generated from copper smelting process. This cargo is highly permeable and pore water of this cargo drains quickly. It is black or red-brown in colour and either granular or lump.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	1,500 to 2,500	0.40 to 0.67
Size	Class	Group
Up to 10 mm	Not applicable	A

**Hazard**

This cargo may liquefy if shipped at moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of this Code. This cargo is abrasive. This cargo is non-combustible and has a low fire-risk.

**Stowage & segregation**

No special requirements.

**Hold cleanliness**

No special requirements.

**Weather precautions**

When a cargo is carried in a ship other than a ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

**Loading**

This cargo shall be trimmed to ensure that the height difference between peaks and troughs does not exceed 5% of the ship's breadth and that the cargo slopes uniformly from the hatch boundaries to the bulkheads and no shearing faces remain to collapse during voyage.

When the stowage factor of this cargo is equal or less than 0.56 m<sup>3</sup>/t, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be given to ensure that the tank top is not overstressed during the voyage and during loading by a pile of the cargo.

**Precautions**

Appropriate action shall be taken to protect machinery and accommodation spaces from the dust of the cargo. Bilge wells of the cargo spaces shall be protected from ingress of the cargo. Due consideration shall be given to protect equipment from the dust of the cargo.



Persons who may be exposed to the dust of the cargo shall wear protective clothing, goggles or other equivalent dust eye-protection and dust filter masks, as necessary.

**Ventilation**

No special requirements.

**Carriage**

Bilge water shall be removed regularly during the voyage.

**Discharge**

No special requirements.

**Clean-up**

No special requirements."

**"GLASS CULLET**

**Description**

Green, brown or uncoloured glass. May have a slight sweet smell. Used to make new glass, glass wool and foam glass.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	1,060 to 1,330	0.75 to 0.94
Size	Class	Group
Up to 50 mm	Not applicable	C

**Hazard**

This cargo is non-combustible or has a low fire-risk.

Potential inhalation hazard and skin and eye irritation from cullet dust during handling, placement and transportation.

Potential risk for cuts or punctures during handling and placement.

**Stowage & segregation**

No special requirements.

**Hold cleanliness**

No special requirements.

**Weather precautions**

No special requirements.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

**Precautions**

To protect against possible cuts or penetration injuries as well as against exposure of glass dust to skin, ears and eyes, personnel working with glass cullet shall wear long sleeves, pants, gloves, work boots, hard hats, ear protection and eye protection. Shirt sleeves and pant legs can be taped for additional protection.

Personnel can also wear disposable nuisance dust masks to protect against dust inhalation.

**Ventilation**

No special requirements.

**Carriage**

No special requirements.

**Discharge**

No special requirements.

**Clean-up**

Avoid handling which creates dust.

Wet suppression is an effective measure of dust control."

**"IRON AND STEEL SLAG AND ITS MIXTURE**

This cargo may contain substances hazardous to human health such as cadmium, lead, hexavalent chromium, boron and fluorine. This individual schedule shall not apply to cargoes that meet the criteria specified in 9.2.2.5 and 9.2.3.6.

**Description**

The main component of the cargo is a slag arising from iron and steel manufacture, and a slag mixed with one of the following additives or a combination thereof: cement, granulated blast furnace slag and concrete debris.

The cargo is mostly stabilized before transportation by ageing and slaking for the volume and/or chemical stability in practical usages, and physical properties such as the grain size, etc. are controlled for the performance requirement if necessary the cargo is transported at room temperature.

This cargo does not include both slag residue and hot iron and steel slag discharged from iron and steelmaking processes.

The iron and steel slag is a vitrified or crystallized solid formed out of high temperature processes, and it is a mixture of several mineralogical phases.

This cargo may include shaped blocks made of iron and steel slag with a combination of cement and ground granulated blast furnace slag. The colour is in the range from greyish-white to dark grey, and the appearance is in the range from granulated, pebble to blocks. Examples of the application of this cargo are: road construction materials, concrete aggregate, soil improvement, civil engineering materials, raw materials of cement industry and raw materials for fertilizer.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	1,200 to 3,000	0.33 to 0.83
Size	Class	Group
Up to 100 mm	Not applicable	A

**Hazard**

This cargo may liquefy if shipped at a moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of this Code. This cargo is non-combustible and has a low fire-risk.

**Stowage & segregation**

No special requirements.

**Hold cleanliness**

No special requirements.

**Weather precautions**

When a cargo is carried in a ship other than a ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept at less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

When the stowage factor of this cargo is equal or less than 0.56 m<sup>3</sup>/t, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be given to ensure that the tank top is not overstressed during the voyage and during loading by a pile of the cargo.

**Precautions**

Persons who may be exposed to the dust of the cargo shall wear protective clothing, goggles or other equivalent dust eye-protection and dust filter masks, as necessary.

**Ventilation**

No special requirements.

**Carriage**

The appearance of the surface of this cargo shall be checked regularly during voyage. If free water above the cargo or fluid state of the cargo is observed during voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsizing of the ship, and give consideration to seeking emergency entry into a place of refuge.

**Discharge**

No special requirements.

**Clean-up**

No special requirements."

**"IRON ORE FINES**

The provisions of this schedule shall apply to iron ore cargoes containing both:

- .1 10% or more of fine particles less than 1 mm ( $D_{10} \leq 1$  mm); and
- .2 50% or more of particles less than 10 mm ( $D_{50} \leq 10$  mm).

Notwithstanding the above provision, iron ore fines where the total goethite content is 35% or more by mass may be carried in accordance with the individual schedule for "IRON ORE", provided the master receives from the shipper a declaration of the goethite content of the cargo which has been determined according to internationally or nationally accepted standard procedures.

**Description**

Iron ore fines vary in colour from dark grey, rusty red to yellow and contain hematite, goethite and magnetite with varying iron content.

IRON CONCENTRATE is a different cargo (see individual schedule for "Mineral Concentrates")

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	1,500 to 3,500	0.29 to 0.67
Size	Class	Group
10% or more of fine particles less than 1 mm and 50% or more of particles less than 10 mm	Not applicable	A

**Hazard**

This cargo may liquefy if shipped at moisture content in excess of its transportable moisture limit (TML). See sections 7 and 8 of this Code.

This cargo may affect magnetic compasses.

This cargo is non-combustible or has a low fire-risk.

**Stowage & segregation**

No special requirements

**Hold cleanliness**

No special requirements

**Weather precautions**

When a cargo is carried in a ship other than a ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;

- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

When the stowage factor of this cargo is equal or less than 0.56 m<sup>3</sup>/t, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be given to ensure that the tank top is not overstressed during the voyage and during loading by a pile of the cargo.

**Precautions**

Loading rates of this cargo are normally very high. Due consideration shall be given to the ballasting operation in developing the loading plan required by SOLAS regulation VI/7.3. Bilge wells shall be clean, dry and protected as appropriate to prevent ingress of the cargo.

**Ventilation**

No special requirements

**Carriage**

Cargo hold bilges shall be sounded at regular intervals and pumped out, as necessary. The appearance of the surface of this cargo shall be checked regularly during voyage, as far as practicable. If free water above the cargo or fluid state of the cargo is observed during voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsize of the ship, and give consideration to seeking emergency entry into a place of refuge.

**Discharge**

No special requirements.

**Clean-up**

No special requirements."

**"IRON OXIDE TECHNICAL****Description**

Iron oxide technical is generated as a product or by-product in the manufacture of di-iron trioxide (iron (III) oxide) for the industrial and commercial use. The material is odourless and red in colour.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	1,000	1.0
Size	Class	Group
Fine particles	Not applicable	A

**Hazard**

Dust may cause skin and eye irritation. Iron cargoes may affect magnetic compasses.

This cargo may liquefy if shipped at moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of this Code. This cargo is non-combustible or has a low fire-risk.

**Stowage & segregation**

No special requirements

**Hold cleanliness**

No special requirements

**Weather precautions**

When a cargo is carried in a ship other than a ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

**Loading**

Trim in accordance with the relevant provisions in compliance with sections 4 and 5 of this Code.

**Precautions**

Persons who may be exposed to the dust of the cargo shall wear protective clothing, goggles or other equivalent dust eye-protection and dust filter masks, as necessary.

Bilge wells shall be clean, dry and covered as appropriate, to prevent ingress of the cargo.

**Ventilation**

No special requirements

**Carriage**

The appearance of the surface of this cargo shall be checked regularly during voyage. If free water above the cargo or fluid state of the cargo is observed during voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsizing of the ship, and give consideration to seeking emergency entry into a place of refuge.

**Discharge**

No special requirements

**Clean-up**

After discharge of this cargo, the bilge wells and the scuppers of the cargo spaces shall be checked and any blockage in the bilge wells and the scuppers shall be removed."

**"IRON SINTER****Description**

The thermally agglomerated substance formed by heating a variable mixture of finely divided coke, iron ore, blast furnace dust, steelmaking dust, mill scale, other miscellaneous iron-bearing materials, limestone, and dolomite at 1315°C to 1482°C.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	1,800 to 2,100	0.47 to 0.56
Size	Class	Group
Up to 200 mm	Not applicable	C

**Hazard**

Dust of this cargo is fine and may be irritating to eye and respiratory tract. This cargo is non-combustible or has a low fire-risk.

**Stowage & segregation**

No special requirements.

**Hold cleanliness**

No special requirements.

**Weather precautions**

No special requirements.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

As the density of the cargo is extremely high, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be paid to ensure that the tank top is not overstressed during voyage and during loading by a pile of the cargo.

**Precautions**

Bilge wells of the cargo space shall be protected from ingress of the cargo. Persons who may be exposed to the dust of the cargo shall wear protective clothing, goggles or other equivalent dust eye protection and dust filter masks, as necessary.

**Ventilation**

No special requirements.

**Carriage**

Bilge shall be sounded and pumped out as necessary during the voyage.

**Discharge**

No special requirements.

**Clean-up**

No special requirements."

**"MANGANESE COMPONENT FERROALLOY SLAG****Description**

By-product generated in process of manufacturing manganese component ferroalloy. Particles or lumps of green, brownish-red or grayish-black. Moisture: 1.2% to 5.6%.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	1,480 to 1,935	0.52 to 0.68
Size	Class	Group
Up to 200 mm	Not applicable	C

**Hazard**

No special hazards.

This cargo is non-combustible or has a low fire-risk.

**Stowage & segregation**

No special requirements.

**Hold cleanliness**

No special requirements.

**Weather precautions**

No special requirements.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

When the stowage factor of this cargo is equal or less than 0.56 m<sup>3</sup>/t, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be given to ensure that tank top is not overstressed during voyage and during loading by a pile of the cargo.

**Precautions**

Persons who may be exposed to the dust of the cargo shall wear protective clothing, goggles or other equivalent dust eye-protection and dust filter masks, as necessary.

**Ventilation**

No special requirements.



**Carriage**

No special requirements.

**Discharge**

No special requirements.

**Clean-up**

No special requirements."

**"MANGANESE ORE FINES**

The provisions of this schedule shall apply to manganese ore cargoes containing both:

- .1 10% or more of fine particles less than 1 mm ( $D_{10} \leq 1$  mm); and
- .2 50% or more of particles less than 10 mm ( $D_{50} \leq 10$  mm).

Notwithstanding the above provisions, manganese ore cargoes which do not exhibit a flow moisture point (FMP) are not liable to liquefy and shall be shipped as a Group C cargo under the provisions of the MANGANESE ORE individual schedule.

This schedule applies to manganese ore cargoes which may liquefy. For manganese ore cargoes not liable to liquefy see the MANGANESE ORE schedule.

**Description**

Manganese ore fines is multicoloured, and usually brown to black. Its colour and texture may vary due to variations of the manganese and gangue minerals present. It is a very heavy cargo with typical moisture content up to 15% by weight.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	1,450 to 3,200	0.31 to 0.69
Size	Class	Group
Typically up to 15 mm with more than 10% finer than 1 mm and more than 50% finer than 10 mm	Not applicable	A

**Hazard**

This cargo may liquefy if shipped at moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of this Code.

The dust of this cargo is irritating to the eyes and mucous membranes.

This cargo is non-combustible or has a low fire-risk. It is stable and non-reactive under normal conditions of use, storage and transport. However, this cargo may ignite in contact with incompatible materials such as acids, alkalis, oxidizing and reducing agents. It may decompose to form toxic manganese oxide particles when heated to decomposition.

**Stowage & segregation**

Separated from acids, alkalis, oxidizing and reducing agents.

**Hold cleanliness**

Clean and dry as relevant to the hazards of the cargo.

**Weather precautions**

When a cargo is carried in a ship other than a ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this schedule, during handling of the cargo all non-working hatches of the cargo spaces into which the cargo is loaded, or to be loaded, shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

When the stowage factor of this cargo is equal to or less than 0.56 m<sup>3</sup>/t, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be paid to ensure that the tank top is not overstressed during voyage and during loading by a pile of the cargo.

**Precautions**

Persons who may be exposed to the dust of the cargo shall wear protective clothing, goggles or other equivalent dust eye-protection and dust filter masks, as necessary.

Bilge wells shall be clean, dry and covered as appropriate, to prevent ingress of the cargo. Bilge system of a cargo space to which this cargo is to be loaded shall be tested to ensure it is working. Appropriate precautions shall be taken to protect machinery and accommodation spaces from the dust of the cargo.

**Ventilation**

No special requirements.

**Carriage**

The appearance of the surface of the cargo shall be checked regularly during voyage. If free water above the cargo or fluid state of the cargo is observed during the voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsize of the ship, and give consideration to seeking emergency entry into a place of refuge.

**Discharge**

No special requirements.

**Clean-up**

No special requirements."

**"SCALE GENERATED FROM THE IRON AND STEEL MAKING PROCESS"****Description**

This cargo consists mainly of ferric oxide which is collected from various places of iron and steel making process. Mill scale, which is scale collected from water used in hot rolling process and from drainage pits with a small amount of oil which is used for rolling, is a main component of this cargo. This cargo is reused as a raw material for iron.

Shape varies from powder to lumps. Colour is gray, ash black green, brown, burnt umber or black. Specific gravity of solids is 3 to 6.

This cargo consists mainly of moisture, oil (less than 1.2%), Wustite (FeO), Magnetite (Fe<sub>3</sub>O<sub>4</sub>), Hematite (Fe<sub>2</sub>O<sub>3</sub>), metallic iron and Fayalite (Fe<sub>2</sub>SiO<sub>4</sub>). It consists of main chemical elements in this cargo except for moisture and oil are in the range of the followings: Fe > 70%, Ca < 0.8%, Si < 0.7%, Al < 0.3%, Cr < 1.5%, Ni < 0.5%, Mn < 1.0%.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	1,300 to 3,300	0.30 to 0.77
Size	Class	Group
Up to 150 mm	Not applicable	A

**Hazard**

This cargo may liquefy if shipped at moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of this Code. This cargo is non-combustible or has a low fire-risk.

**Stowage & segregation**

No special requirements.

**Hold cleanliness**

No special requirements.

**Weather precautions**

When a cargo is carried in a ship other than a ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

When the stowage factor of this cargo is equal or less than 0.56 m<sup>3</sup>/t, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be given to ensure that the tank top is not overstressed during voyage and during loading by a pile of the cargo.

**Precautions**

Persons who may be exposed to the dust of the cargo shall wear protective clothing, goggles or other equivalent dust eye-protection and dust filter masks, as necessary.

As this cargo may contain oil less than 1.2%, due consideration shall be given not to discharge bilge directly from the cargo holds.

**Ventilation**

No special requirements.

**Carriage**

The appearance of the surface of this cargo shall be checked regularly during voyage. If free water above the cargo or fluid state of the cargo is observed during voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsize of the ship, and give consideration to seeking emergency entry into a place of refuge.

**Discharge**

No special requirements.

**Clean-up**

No special requirements."

**"SPODUMENE (UPGRADED)****Description**

Spodumene (upgraded) is an odourless and tasteless off-white to beige sand containing a mixture of naturally occurring silicates and quartz. It is produced by processing naturally occurring spodumene.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
30° to 40°	1,600 to 2,000	0.50 to 0.63
Size	Class	Group
Up to 8 mm	Not applicable	A

**Hazard**

This cargo may liquefy if shipped at moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of this Code. This cargo is non-combustible or has a low fire-risk.

**Stowage & segregation**

No special requirements.

**Hold cleanliness**

Clean and dry as relevant to the hazards of the cargo.

**Weather precautions**

When this cargo is carried in a ship other than a ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

When the stowage factor of this cargo is equal or less than 0.56 m<sup>3</sup>/t, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be given to ensure that the tank top is not overstressed during the voyage and during loading by a pile of the cargo.

**Precautions**

Bilge wells shall be clean, dry and covered as appropriate, to prevent ingress of the cargo. Bilge system of a cargo space to which this cargo is to be loaded shall be tested to ensure it is working.

**Ventilation**

No special requirements.

**Carriage**

The appearance of the surface of the cargo shall be checked regularly during the voyage. If free water above the cargo or fluid state of the cargo is observed during the voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsizing of the ship, and give consideration to seeking emergency entry into a place of refuge.

**Discharge**

No special requirements.

**Clean-up**

No special requirements."

**"WOOD PELLETS CONTAINING ADDITIVES AND/OR BINDERS****Description**

The wood pellets covered by this schedule are those containing additives and/or binders. These wood pellets are light blond to dark brown in colour; very hard and cannot be easily squashed; have a typical specific density between 1,100 to 1,700 kg/m<sup>3</sup>. Wood pellets are

made of sawdust, planer shavings and other wood waste such as bark coming out of the lumber manufacturing processes. The raw material is fragmented, dried and extruded into pellet form using appropriate additives and/or binders. The raw material is compressed approximately 3.5 times and the finished wood pellets typically have a moisture content of 4% to 8%. Wood pellets are used as a fuel in district heating and electrical power generation as well as a fuel for small space heaters such as stoves and fireplaces.

Wood pellets are also used as animal bedding due to the absorption characteristics. Such wood pellets typically have a moisture content of 8% to 10%.

For wood pellets not containing any additives and/or binders see separate schedule.

#### Characteristics

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Approximately 30°	600 to 750	1.33 to 1.67
Size	Class	Group
Cylindrical with Diameter: 3 mm to 12 mm Length: 10 to 20 mm	MHB (WF)	B

#### Hazard

Shipments are subject to oxidation leading to depletion of oxygen and increase of carbon monoxide and carbon dioxide in cargo and communicating spaces (also see Weather precautions).

Swelling if exposed to moisture. Wood pellets may ferment over time if moisture content is over 15%, leading to generation of asphyxiating and flammable gases which may cause spontaneous combustion.

Handling of wood pellets may cause dust to develop. Risk of explosion at high dust concentration.

#### Stowage & segregation

Segregate as for class 4.1 materials.

#### Hold cleanliness

Clean and dry as relevant to the hazards of the cargo.

#### Weather precautions

This cargo shall be kept as dry as practicable. This cargo shall not be handled during precipitation. During handling of this cargo, all non-working hatches of the cargo spaces into which this cargo is loaded or to be loaded shall be closed. There is a high risk of renewed oxygen depletion and carbon monoxide formation in previously ventilated adjacent spaces after closure of the hatch covers.

#### Loading

Trim in accordance with the relevant provisions required under sections 4, 5 and 6 of this Code.

**Precautions**

Entry of personnel into cargo and adjacent confined spaces shall not be permitted until tests have been carried out and it has been established that the oxygen content and carbon monoxide levels have been restored to the following levels: oxygen 21% and carbon monoxide <100 ppm. If these conditions are not met, additional ventilation shall be applied to the cargo hold or adjacent confined spaces and re-measuring shall be conducted after a suitable interval.

An oxygen and carbon monoxide meter shall be worn and activated by all crew when entering cargo and adjacent enclosed spaces.

**Ventilation**

Ventilation of enclosed spaces adjacent to a cargo hold before entry may be necessary even if these spaces are apparently sealed from the cargo hold.

**Carriage**

No special requirements.

**Discharge**

No special requirements.

**Clean-up**

No special requirements.

**Emergency procedures**

<p><b>Special emergency equipment to be carried</b> Self-contained breathing apparatus and combined or individual oxygen and carbon monoxide meters should be available.</p>
<p><b>Emergency procedures</b> Nil</p>
<p><b>Emergency action in the event of fire</b> Batten down; use ship's fixed fire-fighting installation, if fitted. Exclusion of air may be sufficient to control fire. Extinguish fire with carbon dioxide, foam or water.</p>
<p><b>Medical First Aid</b> Refer to the Medical First Aid Guide (MFAG), as amended.</p>



**"WOOD PELLETS NOT CONTAINING ANY ADDITIVES AND/OR BINDERS****Description**

The wood pellets covered by this schedule are those not containing any additives and/or binders. These wood pellets are light blond to dark brown in colour; very hard and cannot be easily squashed; have a typical specific density between 1,100 to 1,700 kg/m<sup>3</sup>. The wood pellets are made of sawdust, planer shavings and other wood waste such as bark coming out of the lumber manufacturing processes. The raw material is fragmented, dried and extruded into pellet form. The raw material is compressed approximately 3.5 times and the finished wood pellets typically have a moisture content of 4% to 8%. Wood pellets are used as a fuel in district heating and electrical power generation as well as a fuel for small space heaters such as stoves and fireplaces.

Wood pellets are also used as animal bedding due to the absorption characteristics. Such wood pellets typically have a moisture content of 8% to 10%.

For wood pellets containing additives and/or binders see separate schedule.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Approximately 30°	600 to 750	1.33 to 1.67
Size	Class	Group
Cylindrical with Diameter: 3 mm to 12 mm Length: 10 to 20 mm	MHB (OH)	B

**Hazard**

Shipments are subject to oxidation leading to depletion of oxygen and increase of carbon monoxide and carbon dioxide in cargo and communicating spaces (also see "Weather precautions").

Swelling if exposed to moisture. Wood pellets may ferment over time if moisture content is over 15%, leading to generation of asphyxiating and flammable gases but gas concentrations do not reach flammable levels. This cargo has a low fire-risk.

Handling of wood pellets may cause dust to develop. Risk of explosion at high dust concentration.

**Stowage & segregation**

Segregate as for class 4.1 materials.

**Hold cleanliness**

Clean and dry as relevant to the hazards of the cargo.

**Weather precautions**

This cargo shall be kept as dry as practicable. This cargo shall not be handled during precipitation. During handling of this cargo, all non-working hatches of the cargo spaces into which this cargo is loaded or to be loaded shall be closed. There is a high risk of renewed oxygen depletion and carbon monoxide formation in previously ventilated adjacent spaces after such closure.



**Loading**

Trim in accordance with the relevant provisions required under sections 4, 5 and 6 of this Code.

**Precautions**

Entry of personnel into cargo and adjacent confined spaces shall not be permitted until tests have been carried out and it has been established that the oxygen content and carbon monoxide levels have been restored to the following levels: oxygen 21% and carbon monoxide <100 ppm. If these conditions are not met, additional ventilation shall be applied to the cargo hold or adjacent confined spaces and remeasuring shall be conducted after a suitable interval.

An oxygen and carbon monoxide meter shall be worn and activated by all crew when entering cargo and adjacent enclosed spaces.

**Ventilation**

Ventilation of enclosed spaces adjacent to a cargo hold before entry may be necessary even if these spaces are apparently sealed from the cargo hold.

**Carriage**

No special requirements.

**Discharge**

No special requirements.

**Clean-up**

No special requirements.

**Emergency procedures**

<p><b>Special emergency equipment to be carried</b> Self-contained breathing apparatus and combined or individual oxygen and carbon monoxide meters should be available.</p>
<p><b>Emergency procedures</b> Nil</p>
<p><b>Emergency action in the event of fire</b> Batten down; use ship's fixed fire-fighting installation, if fitted. Exclusion of air may be sufficient to control fire. Extinguish fire with carbon dioxide, foam or water.</p>
<p><b>Medical First Aid</b> Refer to the Medical First Aid Guide (MFAG), as amended.</p>

**"ZINC SLAG****Description**

Residue generated from zinc smelting process. This cargo is highly permeable and pore water of this cargo drains quickly. It is black or red-brown in colour and either granular or lump.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	1,500 to 2,500	0.40 to 0.67
Size	Class	Group
Up to 10 mm	Not applicable	A

**Hazard**

This cargo may liquefy if shipped at moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of this Code. This cargo is abrasive. This cargo is non-combustible or has a low fire-risk.

**Stowage & segregation**

No special requirements.

**Hold cleanliness**

No special requirements.

**Weather precautions**

When a cargo is carried in a ship other than a ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this individual schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and
- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

**Loading**

This cargo shall be trimmed to ensure that the height difference between peaks and troughs does not exceed 5% of the ship's breadth and that the cargo slopes uniformly from the hatch boundaries to the bulkheads and no shearing faces remain to collapse during voyage.

When the stowage factor of this cargo is equal or less than 0.56 m<sup>3</sup>/t, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be given to ensure that the tank top is not overstressed during the voyage and during loading by a pile of the cargo.

**Precautions**

Appropriate action shall be taken to protect machinery and accommodation spaces from the dust of the cargo. Bilge wells of the cargo spaces shall be protected from ingress of the cargo. Due consideration shall be given to protect equipment from the dust of the cargo. Persons who may be exposed to the dust of the cargo shall wear protective clothing, goggles or other equivalent dust eye-protection and dust filter masks, as necessary.

**Ventilation**

No special requirements.

**Carriage**

Bilge water shall be removed regularly during the voyage.

**Discharge**

No special requirements.

**Clean-up**

No special requirements."

**"ZIRCON KYANITE CONCENTRATE****Description**

Zircon kyanite concentrate is an odourless and tasteless off-white to brown mixture of the heavy mineral sand processing waste stream (concentrate) and zircon sand. It is used for upgrading mineral sand products such as zircon and kyanite. It is a very heavy cargo.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	2,400 to 3,000	0.33 to 0.42
Size	Class	Group
Fine particles	Not applicable	A

**Hazard**

This cargo may liquefy if shipped at moisture content in excess of its Transportable Moisture Limit (TML). See sections 7 and 8 of this Code. This cargo is non-combustible or has a low fire-risk.

**Stowage & segregation**

No special requirements.

**Hold cleanliness**

Clean and dry as relevant to the hazards of the cargo.

**Weather precautions**

When this cargo is carried in a ship other than a specially constructed or fitted cargo ship complying with the requirements in subsection 7.3.2 of this Code, the following provisions shall be complied with:

- .1 the moisture content of the cargo shall be kept less than its TML during loading operations and the voyage;
- .2 unless expressly provided otherwise in this individual schedule, the cargo shall not be handled during precipitation;
- .3 unless expressly provided otherwise in this schedule, during handling of the cargo, all non-working hatches of the cargo spaces into which the cargo is loaded or to be loaded shall be closed;
- .4 the cargo may be handled during precipitation under the conditions stated in the procedures required in subsection 4.3.3 of this Code; and

- .5 the cargo in a cargo space may be discharged during precipitation provided that the total amount of the cargo in the cargo space is to be discharged in the port.

**Loading**

Trim in accordance with the relevant provisions required under sections 4 and 5 of this Code.

When the stowage factor of this cargo is equal or less than 0.56 m<sup>3</sup>/t, the tank top may be overstressed unless the cargo is evenly spread across the tank top to equalize the weight distribution. Due consideration shall be given to ensure that the tank top is not overstressed during the voyage and during loading by a pile of the cargo.

**Precautions**

Bilge wells shall be clean, dry and covered as appropriate, to prevent ingress of the cargo. Bilge system of a cargo space to which this cargo is to be loaded shall be tested to ensure it is working.

**Ventilation**

No special requirements.

**Carriage**

The appearance of the surface of the cargo shall be checked regularly during the voyage. If free water above the cargo or fluid state of the cargo is observed during the voyage, the master shall take appropriate actions to prevent cargo shifting and potential capsizing of the ship, and give consideration to seeking emergency entry into a place of refuge.

**Discharge**

No special requirements.

**Clean-up**

No special requirements."

**APPENDIX 2*****Laboratory test procedures,  
associated apparatus and standards*****1 Test procedures for materials which may liquefy and associated apparatus**

47 Add the following new "subsection 1.4":

**"1.4 Modified Proctor/Fagerberg test procedure for Iron Ore Fines****1.4.1 Scope**

- .1 The test procedure specified in this section (this test) should only be used for determining transportable moisture limit (TML) of Iron Ore Fines. See individual schedule for Iron Ore Fines.

- .2 Iron Ore Fines is iron ore containing both:
  - .1 10% or more of fine particles less than 1 mm, and
  - .2 50% or more of particles less than 10 mm.
  - .3 The TML of Iron Ore Fines is taken as equal to the critical moisture content at 80% degree of saturation according to the modified Proctor/Fagerberg method test.
  - .4 The test procedure is applicable when the degree of saturation corresponding to Optimum Moisture Content (OMC) is 90% or higher.

#### **1.4.2 Modified Proctor/Fagerberg test equipment**

- .1 The Proctor apparatus (see figure 1.4.1) consists of a cylindrical iron mould with a removable extension piece (the compaction cylinder) and a compaction tool guided by a pipe open at its lower end (the compaction hammer).
- .2 Scales and weights (see 3.2) and suitable sample containers.
- .3 A drying oven with a controlled temperature interval from 100°C to maximum 105°C.
- .4 A container for hand mixing. Care should be taken to ensure that the mixing process does not reduce the particle size by breakage or increase the particle size by agglomeration or consistency of the test material.
- .5 A gas or water pycnometry equipment to determine the density of the solid material as per a recognized standard (e.g. ASTM D5550, AS1289, etc.)

#### **1.4.3 Temperature and humidity** (see 1.1.3)

#### **1.4.4 Procedure**

##### **.1 Establishment of a complete compaction curve**

A representative sample according to a relevant standard (see section 4.7 of the IMSBC Code) of the test material is partially dried at a temperature of approximately 60°C or less to reduce the samples moisture to suitable starting moisture, if needed. The representative sample for this test should not be fully dried, except in case of moisture content measurement.

The total quantity of the test material should be at least three times as big as required for the complete test sequence. Compaction tests are executed for five to ten different moisture contents (five to ten separate tests). The samples are adjusted in order that partially dry to almost saturated samples are obtained. The required quantity per compaction test is about 2,000 cm<sup>3</sup>.

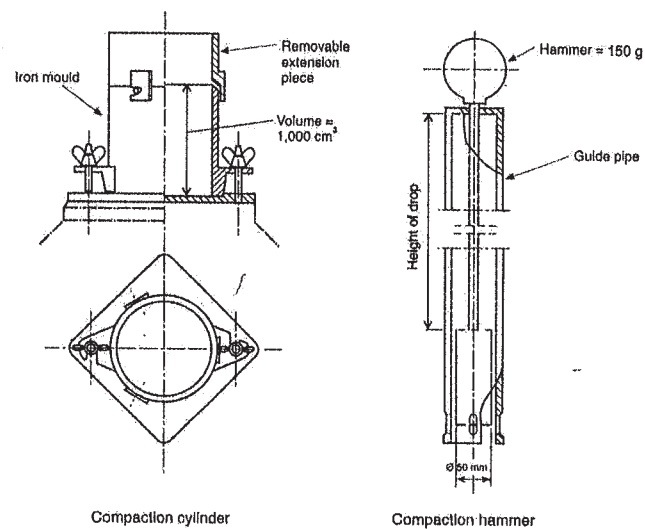


Figure 1.4.1

At each compaction test a suitable amount of water is added to the sample of the test material. The sample material is gently mixed before being allowed to rest and equilibrate. Approximately one fifth of the mixed sample is filled into the mould and levelled and then the increment is tamped uniformly over the surface of the increment. Tamping is executed by dropping a 150 g hammer 25 times through the guide pipe, 0.15 m each time. The performance is repeated for all five layers. When the last layer has been tamped, the extension piece is removed and the sample is levelled off along the brim of the mould with care, ensuring to remove any large particles that may hinder levelling of the sample, replacing them with material contained in the extension piece and re-levelling.

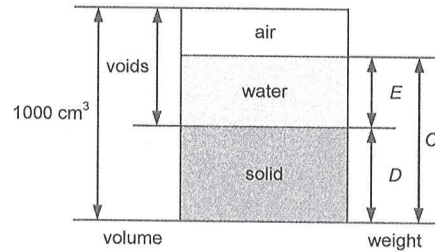
When the weight of the cylinder with the tamped sample has been determined, the cylinder is emptied, the sample is dried at 105°C and the weight is determined. Reference is made to ISO 3087:2011 "Iron ores – Determination of the moisture content of a lot". The test then is repeated for the other samples with different moisture contents.

Density of solid material should be measured using a gas or water pycnometry equipment according to internationally or nationally accepted standard, e.g. ASTM D5550 and AS 1289 (see subsection 1.4.2.5).

**.2 Definitions and data for calculations (see figure 1.4.2)**

- empty cylinder, mass in grams:  $A$
  - cylinder with tamped sample, mass in grams:  $B$
  - wet sample, mass in grams:  $C$
- $$C = B - A$$
- dry sample, mass in grams:  $D$
  - water, mass in grams (equivalent to volume in  $\text{cm}^3$ ):  $E$
- $$E = C - D$$

Volume of cylinder:  $1000 \text{ cm}^3$



**Figure 1.4.2**

**.3 Calculation of main characteristics**

- density of solid material,  $\text{g/cm}^3$  ( $\text{t/m}^3$ ):  $d$
- dry bulk density,  $\text{g/cm}^3$  ( $\text{t/m}^3$ ):  $\gamma$

$$\gamma = \frac{D}{1000}$$

- net water content, volume %:  $e_v$

$$e_v = \frac{E}{D} \times 100 \times d$$

- void ratio:  $e$  (volume of voids divided by volume of solids)

$$e = \frac{d}{\gamma} - 1$$

- degree of saturation, percentage by volume:  $S$

$$S = \frac{e_v}{e}$$

- gross water content, percentage by mass:  $W^1$

$$W^1 = \frac{E}{C} \times 100$$

- net water content, percentage by mass:  $W$

$$W = \frac{E}{D} \times 100$$

#### .4 Presentation of the compaction tests

For each compaction test the calculated void ratio ( $e$ ) value is plotted as the ordinate in a diagram with net water content ( $e_v$ ) and degree of saturation ( $S$ ) as the respective abscissa parameters.

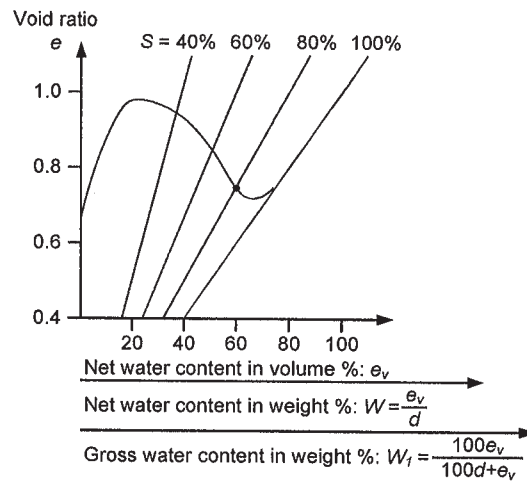


Figure 1.4.3

#### .5 Compaction curve

The test sequence results in a specific compaction curve (see figure 1.4.3).

The critical moisture content is indicated by the intersection of the compaction curve and the line  $S = 80\%$  degree of saturation. The transportable moisture limit (TML) is the critical moisture content.

Optimum Moisture Content (OMC) is the moisture content corresponding to the maximum compaction (maximum dry density) under the specified compaction condition. To check the applicability of this test, the relationship between moisture content and dry density should be evaluated, during this test. Then the OMC and the corresponding degree of saturation should be determined. This test procedure was developed based on the finding that the degree of saturation corresponding to OMC of iron ore fines was 90 to 95%, while such degree of saturation of mineral



concentrates was 70% to 75%. In the case that the degree of saturation corresponding to OMC is less than 90%, the shipper should consult with an appropriate authority, for the reason that this test may not be applicable for the material and the TML determined by this test may be too high."

### APPENDIX 3

#### *Properties of solid bulk cargoes*

#### 1 Non-cohesive cargoes

##### 1.1 The following cargoes are non-cohesive when dry:

48 In the list, add the following new entries in alphabetical order:

"ALUMINIUM FLUORIDE"  
 "SPODUMENE (UPGRADED)"  
 "WOOD PELLETS CONTAINING ADDITIVES AND/OR BINDERS"  
 "WOOD PELLETS NOT CONTAINING ANY ADDITIVES AND/OR BINDERS"

and the entry for "WOOD PELLETS" is deleted.

### APPENDIX 4

#### INDEX

49 Insert the following new entries in alphabetical order:

Material	Group	References
ALUMINIUM FLUORIDE	A	
AMORPHOUS SODIUM SILICATE LUMPS	B	
BORIC ACID	B	
CHEMICAL GYPSUM	A	
COPPER SLAG	A	
GLASS CULLET	C	
IRON AND STEEL SLAG AND ITS MIXTURE	A	
IRON ORE FINES	A	
IRON OXIDE TECHNICAL	A	
IRON SINTER	C	
MANGANESE COMPONENT FERROALLOY SLAG	C	
MANGANESE ORE FINES	A	
SCALE GENERATED FROM THE IRON AND STEEL MAKING PROCESS	A	
SPODUMENE (UPGRADED)	A	
WOOD PELLETS CONTAINING ADDITIVES AND/OR BINDERS	B	
WOOD PELLETS NOT CONTAINING ANY ADDITIVES AND/OR BINDERS	B	
ZINC SLAG	A	
ZIRCON KYANITE CONCENTRATE	A	

- 50 The entry for "WOOD PELLETS" is deleted.
- 51 In the entry for "CLINKER ASH, WET" the word "WET" is deleted.

## APPENDIX 5

**Bulk Cargo Shipping Names in three languages  
(English, Spanish and French)**

- 52 After appendix 4, a new appendix 5 is inserted with the following:

**"Bulk Cargo Shipping Names in three languages  
(English, Spanish and French)**

ENGLISH	SPANISH	FRENCH
ALFALFA	ALFALFA	LUZERNE
ALUMINA	ALÚMINA	ALUMINE
ALUMINA, CALCINED	ALÚMINA CALCINADA	ALUMINE CALCINÉE
ALUMINA HYDRATE	HIDRATO DE ALÚMINA	HYDRATE D'ALUMINE
ALUMINIUM FLUORIDE	FLUORURO DE ALUMINIO	FLUORURE D'ALUMINIUM
Aluminium hydroxide	Hidróxido de aluminio	Hydroxyde d'aluminium
ALUMINA SILICA	ALÚMINA SÍLICE	ALUMINE SILICEUSE
ALUMINA SILICA, pellets	ALÚMINA SÍLICE, pellets de	ALUMINE SILICEUSE en granules
ALUMINIUM DROSS	RESIDUOS DE ALUMINIO	LAÏTIER D'ALUMINIUM
ALUMINIUM FERROSILICON POWDER UN 1395	ALUMINIO-FERROSILICIO EN POLVO, No ONU 1395	ALUMINO-FERRO-SILICIUM EN POUDRE UN 1395
ALUMINIUM NITRATE UN 1438	NITRATO DE ALUMINIO, No ONU 1438	NITRATE D'ALUMINIUM UN 1438
ALUMINIUM REMELTING BY-PRODUCTS UN 3170	PRODUCTOS DERIVADOS DE LA REFUNDICIÓN DEL ALUMINIO, No ONU 3170	SOUS-PRODUITS DE LA REFUSION DE L'ALUMINIUM UN 3170
Aluminium salt slags	ESCORIA DE SALES DE ALUMINIO	SCORIES SALINES D'ALUMINIUM
ALUMINIUM SMELTING / REMELTING BY-PRODUCTS, PROCESSED	PRODUCTOS DERIVADOS DE LA FUNDICIÓN DEL ALUMINIO o PRODUCTOS DERIVADOS DE LA REFUNDICIÓN DEL ALUMINIO, TRATADOS	SOUS-PRODUITS DE LA FABRICATION/REFUSION DE L'ALUMINIUM, TRAITÉS
ALUMINIUM SILICON POWDER, UNCOATED UN 1398	ALUMINIO-SILICIO EN POLVO, NO RECUBIERTO, No ONU 1398	SILICO-ALUMINIUM EN POUDRE NON ENROBÉ UN 1398
ALUMINIUM SKIMMINGS	ESPUMA DE ALUMINIO	CRASSE D'ALUMINIUM
ALUMINIUM SMELTING BY-PRODUCTS UN 3170	PRODUCTOS DERIVADOS DE LA FUNDICIÓN DEL ALUMINIO, No ONU 3170	SOUS-PRODUITS DE LA FABRICATION DE L'ALUMINIUM UN 3170
AMMONIUM NITRATE UN 1942	NITRATO AMÓNICO, No ONU 1942	NITRATE D'AMMONIUM UN 1942
AMMONIUM NITRATE BASED FERTILIZER UN 2067	ABONOS A BASE DE NITRATO AMÓNICO, No ONU 2067	ENGRAIS AU NITRATE D'AMMONIUM UN 2067

ENGLISH	SPANISH	FRENCH
AMMONIUM NITRATE BASED FERTILIZER UN 2071	ABONOS A BASE DE NITRATO AMÓNICO, No ONU 2071	ENGRAIS AU NITRATE D'AMMONIUM UN 2071
AMMONIUM NITRATE, BASED FERTILIZER (non-hazardous)	ABONOS A BASE DE NITRATO AMÓNICO (no entrañan riesgos)	ENGRAIS AU NITRATE D'AMMONIUM (non dangereux)
AMMONIUM SULPHATE	SULFATO AMÓNICO	SULFATE D'AMMONIUM
AMORPHOUS SODIUM SILICATE LUMPS	TERRONES DE SILICATO SÓDICO AMORFO	MORCEAUX DE SILICATE DE SODIUM AMORPHE
ANTIMONY ORE AND RESIDUE	ANTIMONIO, MINERAL Y RESIDUOS DE	MINÉRAI D'ANTIMOINE ET RÉSIDU DE MINÉRAI D'ANTIMOINE
Bakery materials	Materias de panadería	Produits de boulangerie
BARIUM NITRATE UN 1446	NITRATO DE BARIO, No ONU 1446	NITRATE DE BARYUM UN 1446
Barley malt pellets	Malta de cebada, pellets de	Maïte d'orge en boulettes
BARYTES	BARITAS	BARYTINE
BAUXITE	BAUXITA	BAUXITE
Beet, expelled	Remolacha, prensada	Betterave, triturée
Beet, extracted	Remolacha, en extracto	Betterave, sous-produits de l'extraction
BIOSLUDGE	FANGOS BIOLÓGICOS	BOUE ACTIVÉE
Blende (zinc sulphide)	Blenda (sulfuro de cinc)	Blende (sulfure de zinc)
BORAX (PENTAHYDRATE CRUDE)	BÓRAX (CRUDO PENTAHIDRATADO)	BORAX (BRUT PENTAHYDRATÉ)
BORAX, ANHYDROUS, crude	BÓRAX ANHIDRO, crudo	BORAX ANHYDRE brut
BORAX, ANHYDROUS, refined C	BÓRAX ANHIDRO, refinado	BORAX ANHYDRE raffiné C
BORIC ACID	ÁCIDO BÓRICO	ACIDE BORIQUE
Bran pellets	Salvado, pellets de	Son en boulettes
Brewer's grain pellets	Orujo de cerveza, pellets de	Drêches de brasserie en boulettes
BROWN COAL BRIQUETTES	BRIQUETAS DE LIGNITO	CHARBON BRUN EN BRIQUETTES
Calcined clay	Arcilla calcinada	Argile calcinée
Calcined pyrites	Piritas calcinadas	Pyrites calcinées
Calcium fluoride	Fluoruro de calcio	Fluorure de calcium
CALCIUM NITRATE	NITRATO CÁLCICO, No ONU 1454	NITRATE DE CALCIUM
CALCIUM NITRATE FERTILIZER	ABONOS A BASE DE NITRATO CÁLCICO	ENGRAIS AU NITRATE DE CALCIUM
Calcium oxide	Óxido de calcio	Oxyde de calcium
Canola pellets	Píldoras de canola	Canola en boulettes
CARBORUNDUM	CARBORUNDO	CARBORUNDUM
CASTOR BEANS UN 2969	SEMILLAS DE RICINO, No ONU 2969	GRAINES DE RICIN UN 2969
CASTOR FLAKE UN 2969	ESCAMAS DE RICINO, No ONU 2969	GRAINES DE RICIN EN FLOCONS UN 2969
CASTOR MEAL UN 2969	HARINA DE RICINO, No ONU 2969	FARINES DE RICIN UN 2969
CASTOR POMACE UN 2969	PULPA DE RICINO, No ONU 2969	TOURTEAUX DE RICIN UN 2969
CEMENT	CEMENTO	CIMENT
CEMENT CLINKERS	CEMENTO, CLINKERS DE	CIMENT, CLINKERS DE
CEMENT COPPER	COBRE DE CEMENTACIÓN	CUIVRE CÉMENT
Chalcopyrite	Calcopirita	Chalcopyrite

ENGLISH	SPANISH	FRENCH
CHAMOTTE	CHAMOTA	CHAMOTTE
CHARCOAL	CARBÓN VEGETAL	CHARBON
CHEMICAL GYPSUM	YESO QUÍMICO	GYPSE DE SYNTHÈSE
CHOPPED RUBBER AND PLASTIC INSULATION	FRAGMENTOS DE REVESTIMIENTOS AISLANTES DE GOMA Y PLÁSTICO	FRAGMENTS D'ISOLANT EN PLASTIQUE ET EN CAOUTCHOUC
Chile saltpetre	Salitre de Chile	Salpêtre du Chili
Chilean natural nitrate	Nitrato natural de Chile	Nitrate naturel du Chili
Chilean natural potassic nitrate	Nitrato potásico natural de Chile	Nitrate de potassium naturel du Chili
Chrome ore	Cromo, mineral de	Minerai de chrome
CHROME PELLETS	CROMO, PELLETS DE	CHROME EN PELLETS
CHROMITE ORE	CROMITA, MINERAL DE	MINERAI DE CHROMITE
Chromium ore	Cromio, mineral de	Minerai de chromium
Citrus pulp pellets	Cítricos, pellets de pulpa de	Pulpe d'agrumes en boulettes
CLAY	ARCILLA	ARGILE
CLINKER ASH	CENIZAS DE CLÍNKER	CENDRES DE MÂCHEFER
COAL	CARBÓN	CHARBON
COAL SLURRY	FANGOS DE CARBÓN	BOUES DE CHARBON
COAL TAR PITCH	BREA DE ALQUITRÁN DE HULLA	BRAI DE GOUDRON DE HOUILLE
COARSE CHOPPED TYRES	FRAGMENTOS DE NEUMÁTICOS TRITURADOS	FRAGMENTS DE PNEUS DE GRANDES DIMENSIONS
COARSE IRON AND STEEL SLAG AND ITS MIXTURE	ESCORIA GRUESA DE HIERRO Y ACERO Y SU MEZCLA	SCORIES DE FER ET D'ACIER À GROS GRAINS ET LEUR MÉLANGE
Coconut	Coco	Noix de coco
COKE	COQUE	COKE
COKE BREEZE	CISCO DE COQUE	POUSSIER DE COKE
COLEMANITE	COLEMANITA	COLÉMANITE
COPPER CONCENTRATE	COBRE, CONCENTRADO DE	CONCENTRÉ DE CUIVRE
COPPER GRANULES	COBRE, GRÁNULOS DE	CUIVRE EN GRANULES
COPPER MATTE	COBRE, MATA DE	MATTE DE CUIVRE
Copper nickel	Cuproníquel	Nickel-cuivre
COPPER SLAG	COBRE, ESCORIA DE	SCORIES DE CUIVRE
Copper ore concentrate	Cobre, concentrado mineral de	Concentré de minerai de cuivre
COPPER CONCENTRATE	COBRE, CONCENTRADO DE	CONCENTRÉ DE CUIVRE
Copper precipitate	Cobre, precipitado de	Précipités de cuivre
CEMENT COPPER	COBRE DE CEMENTACIÓN	CUIVRE CÉMENT
COPRA (dry) UN 1363 B	COPRA (seca), No ONU 1363 B	COPRAH (sec) UN 1363
Copra, expelled	Copra, prensada	Coprah, trituré
Copra, extracted	Copra, en extracto	Coprah, sous-produit d'extraction
Corn gluten	Maíz, gluten de	Gluten de maïs
Cotton seed	Semillas de algodón	Graines de cotonnier
CRUSHED CARBON ANODES	ÁNODOS DE CARBÓN TRITURADOS	ANODES EN CARBONE CONCASSÉES

ENGLISH	SPANISH	FRENCH
CRYOLITE	CRIOLITA	CRYOLITHE
Deadburned magnesite	Magnesita calcinada a muerte	Magnésite calcinée
DIAMMONIUM PHOSPHATE	FOSFATO DIAMÓNICO	HYDROGÉNOPHOSPHATE DE DIAMMONIUM
DIRECT REDUCED IRON (A) Briquettes, hot-moulded	HIERRO OBTENIDO POR REDUCCIÓN DIRECTA (A) En forma de briquetas moldeadas en caliente	FER OBTENU PAR RÉDUCTION DIRECTE (A) Briquettes moulées à chaud
DIRECT REDUCED IRON (B) Lumps, pellets, cold-moulded briquettes	HIERRO OBTENIDO POR REDUCCIÓN DIRECTA (B) Terrones, pellets y briquetas moldeadas en frío	FER OBTENU PAR RÉDUCTION DIRECTE (B) Morceaux, pellets, briquettes moulées à froid et tournures de fer indiennes
DIRECT REDUCED IRON (C) By-product fines	HIERRO OBTENIDO POR REDUCCIÓN DIRECTA (C) (Finos obtenidos como productos derivados)	FER OBTENU PAR RÉDUCTION DIRECTE (C) (Fines en tant que sous-produit)
DISTILLERS DRIED GRAINS WITH SOLUBLES	GRANOS SECOS DE DESTILERÍA CON SOLUBLES	DISTILLATS SÉCHÉS DE GRAINS AVEC RÉSIDUS SOLUBLES
DOLOMITE	DOLOMITA	DOLOMITE
Dolomitic quicklime	Cal dolomítica	chaux vive dolomitique
D.R.I.	HRD	not applicable in French
Expellers	Tortas de presión	Expellers
FELSPAR LUMP	FELDESPATO EN TERRONES	FELDSPATH EN MORCEAUX
FERROCHROME	FERROCROMO	FERROCHROME
FERROCHROME, exothermic	FERROCROMO exotérmico	FERROCHROME, exothermique
FERROMANGANESE	FERROMANGANESO	FERROMANGANÈSE
Ferromanganese, exothermic	Ferromanganese exotérmico	Ferromanganèse exothermique
FERRONICKEL	FERRÓNÍQUEL	FERRONICKEL
FERROPHOSPHORUS	FERROFÓSFORO	FERROPHOSPHORE
Ferrophosphorus briquettes	Ferrofósforo, briquetas de	Ferrophosphore en briquettes
FERROSILICON UN 1408	FERROSILICIO, No ONU 1408	FERROSILICIUM UN 1408
FERROSILICON	FERROSILICIO	FERROSILICIUM
FERROUS METAL BORINGS UN 2793	VIRUTAS DE TALADRADO DE METALES FERROSOS, No ONU 2793	ROGNURES DE MÉTAUX FERREUX UN 2793
FERROUS METAL CUTTINGS UN 2793	RECORTES DE METALES FERROSOS, No ONU 2793	ÉBARBURES DE MÉTAUX FERREUX UN 2793
FERROUS METAL SHAVINGS UN 2793	RASPADURAS DE METALES FERROSOS, No ONU 2793	COPEAUX DE MÉTAUX FERREUX UN 2793
FERROUS METAL TURNINGS UN 2793	VIRUTAS DE TORNEADO DE METALES FERROSOS, No ONU 2793	TOURNURES DE MÉTAUX FERREUX UN 2793
FERROUS SULPHATE HEPTAHYDRATE	SULFATO FERROSO HEPTAHIDRATADO	SULFATE FERREUX HEPTAHYDRATÉ
FERTILIZERS WITHOUT NITRATES	ABONOS SIN NITRATOS (no entrañan riesgos)	ENGRAIS SANS NITRATES
FISH (IN BULK)	PESCADO (A GRANEL)	POISSON (EN VRAC)
FISHMEAL, STABILIZED UN 2216	HARINA DE PESCADO ESTABILIZADA, No ONU 2216	FARINE DE POISSON STABILISÉE UN 2216
FISHSCRAP, STABILIZED UN 2216	DESECHOS DE PESCADO ESTABILIZADOS, No ONU 2216	DÉCHETS DE POISSON STABILISÉS UN 2216



ENGLISH	SPANISH	FRENCH
FLUORSPAR	ESPA TOFLÚOR	SPATH FLUOR
FLY ASH, DRY	CENIZAS VOLANTES SECAS	CENDRES VOLANTES SÈCHES
FLY ASH, WET	CENIZAS VOLANTES HÚMEDAS	CENDRES VOLANTES HUMIDES
Galena (lead sulphide)	Galena (sulfuro de plomo)	Galène (sulfure de plomb)
Garbage tankage	Detritos orgánicos	Détritus organiques
GLASS CULLET	DESPERDICIOS DE VIDRIO	CALCIN DE VERRE
Gluten pellets	Gluten, pellets de	Gluten en boulettes
GRAIN SCREENING PELLETS	PELLETS DE GRANZA DE GRANO	CRIBLURES DE GRAIN EN PELLETS
GRANULAR FERROUS SULPHATE	SULFATO FERROSO GRANULAR	SULFATE FERREUX EN GRANULES
GRANULATED NICKEL MATTE (LESS THAN 2% MOISTURE CONTENT)	MATA DE NÍQUEL GRANULADA (CONTENIDO DE HUMEDAD INFERIOR A 2 %)	MATTE DE NICKEL EN GRANULES (TENEUR EN HUMIDITÉ INFÉRIEURE À 2 %)
GRANULATED SLAG	ESCORIA GRANULADA	SCORIES EN GRAINS
GRANULATED TYRE RUBBER	NEUMÁTICO GRANULADO	CAOUTCHOUC DE PNEUS EN GRANULES
Ground nuts, meal	Maní (caca huetes), harina de	Farine d'arachide
GYPSUM	YESO	GYPSE
Hominy chop	Machacado	Hominy chop
GYPSUM GRANULATED	YESO GRANULADO	GYPSE EN GRAINS
ILMENITE CLAY	ILMENITA, ARCILLA DE	ARGILE D'ILMÉNITE
ILMENITE (ROCK)	ILMENITA (ROCA)	ILMÉNITE (ROCHE)
ILMENITE SAND	ILMENITA, ARENA DE	SABLE D'ILMÉNITE
ILMENITE (UPGRADED)	ILMENITA (ENRIQUECIDA)	ILMÉNITE VALORISÉE
IRON AND STEEL SLAG AND ITS MIXTURE	ESCORIA DE HIERRO Y ACERO Y SU MEZCLA	SCORIES DE FER ET D'ACIER ET LEUR MÉLANGE
IRON CONCENTRATE	HIERRO, CONCENTRADO DE	CONCENTRÉ DE FER
IRON CONCENTRATE (pellet feed)	HIERRO, CONCENTRADO DE (para pellets)	CONCENTRÉ DE FER (pour pellets)
IRON CONCENTRATE (sinter feed)	HIERRO, CONCENTRADO DE (para aglomerados)	CONCENTRÉ DE FER (pour agglomérés)
Iron disulphide	Disulfuro de hierro	Disulfure de fer
IRON ORE	HIERRO, MINERAL DE	MINÉRAI DE FER
Iron ore (concentrate, pellet feed, sinter feed)	Hierro, mineral de (concentrado, aglomerados o pellets)	Minérai de fer (concentré, pour pellets, pour agglomérés)
IRON ORE FINES	FINOS DE MINERAL DE HIERRO	FINES DE MINÉRAI DE FER
IRON ORE PELLETS	HIERRO, PELLETS DE MINERAL DE	MINÉRAI DE FER EN PELLETS
IRON OXIDE, SPENT UN 1376	ÓXIDO DE HIERRO AGOTADO, No ONU 1376	OXYDE DE FER RÉSIDUAIRE UN 1376
IRON OXIDE TECHNICAL	ÓXIDO DE HIERRO-GRADO TÉCNICO	OXYDE DE FER DE QUALITÉ TECHNIQUE
IRON SINTER	HIERRO SINTERIZADO	AGGLOMÉRÉS DE FER
Iron swarf	Hierro, virutas de	copeaux de fer
IRON SPONGE, SPENT UN 1376	ESPONJA DE HIERRO AGOTADA, No ONU 1376	TOURNURE DE FER RÉSIDUAIRE UN 1376
IRONSTONE	ROCA FERRUGINOSA	ROCHE FERRUGINEUSE
LABRADORITE	LABRADORITA	LABRADOR

ENGLISH	SPANISH	FRENCH
LEAD AND ZINC CALCINES (mixed)	PLOMO Y CINC, CALCINADOS DE (en mezclas)	PLOMB ET ZINC CALCINÉS (en mélange)
LEAD AND ZINC MIDDINGS	PLOMO Y CINC, MIXTOS DE	MIXTES DE PLOMB ET DE ZINC
LEAD CONCENTRATE	PLOMO, CONCENTRADO DE	CONCENTRÉ DE PLOMB
LEAD NITRATE UN 1469	NITRATO DE PLOMO, No ONU 1469	NITRATE DE PLOMB UN 1469
LEAD ORE	PLOMO, MINERAL DE	MINÉRAI DE PLOMB
Lead ore concentrate	Plomo, concentrado de mineral de	Concentré de minéral de plomb
LEAD ORE RESIDUE	PLOMO, RESIDUOS DE MINERAL DE	RÉSIDU DE MINÉRAI DE PLOMB
LEAD SILVER CONCENTRATE	PLOMO Y PLATA, CONCENTRADO DE	CONCENTRÉ DE PLOMB ARGENTIFÈRE
Lead silver ore	Plomo y plata, mineral de	Minéral de plomb argentifère
Lead sulphide	Sulfuro de plomo	Sulfure de plomb
Lead sulphide (galena)	Sulfuro de plomo (galena)	Sulfure de plomb (galène)
Lignite	Lignita	Lignite
LIME (UNSLAKED)	CAL (VIVA)	CHAUX (VIVE)
LIMESTONE	PIEDRA CALIZA	CALCAIRE
LINTED COTTON SEED	SEMILLAS DE ALGODÓN DESPEPITADO	GRAINES DE COTONNIER AVEC LINTER
Linseed, expelled	Linaza, prensada	Graines de lin, triturées
Linseed, extracted	Linaza, en extracto	Graines de lin, sous-produits de l'extraction
LOGS	TRONCOS	GRUMES
MAGNESIA (DEADBURNED)	MAGNESIA (CALCINADA A MUERTE)	MAGNÉSIE (CALCINÉE)
MAGNESIA (UNSLAKED)	MAGNESIA (VIVA)	MAGNÉSIE (VIVE)
Magnesia, clinker	Magnesia, clinker de	Magnésie en clinkers
Magnesia, electro-fused	Magnesia electrofundida	Magnésie électrofondue
Magnesia, lightburned	Magnesia quemada ligeramente	Magnésie calcinée légère
Magnesia, calcined	Magnesia calcinada	Magnésie calcinée
Magnesia, caustic calcined	Magnesia cáustica calcinada	Magnésie calcinée caustique
Magnesite, clinker	Magnesita, clinker de	Magnésite, clinkers de
MAGNESITE, natural	MAGNESITA natural	MAGNÉSITE, naturelle
Magnesium carbonate	Carbonato de magnesio	Carbonate de magnésium
MAGNESIUM NITRATE UN 1474	NITRATO DE MAGNESIO, No ONU 1474	NITRATE DE MAGNÉSIUM UN 1474
MAGNESIUM SULPHATE FERTILIZERS	ABONOS DE SULFATO DE MAGNESIO	ENGRAIS AU SULFATE DE MAGNÉSIUM
Maize, expelled	Maíz, prensado	Maïs, trituré
Maize, extracted	Maíz, en extracto	Maïs, sous-produit de l'extraction
MANGANESE COMPONENT FERROALLOY SLAG	ESCORIA DE ALEACIÓN DE HIERRO CON MANGANESO	SCORIES DE FERRO-ALLIAGES DE MANGANÈSE
MANGANESE CONCENTRATE	MANGANESO, CONCENTRADO DE	CONCENTRÉ DE MANGANÈSE
MANGANESE ORE	MANGANESO, MINERAL DE	MINÉRAI DE MANGANÈSE
MANGANESE ORE FINES	FINOS DE MINERAL DE MANGANESO	FINES DE MINÉRAI DE MANGANÈSE
M.A.P.	FMA	[not applicable in French]

ENGLISH	SPANISH	FRENCH
MARBLE CHIPS	MÁRMOL, ASTILLAS DE	ÉCLATS DE MARBRE
Meal, oily	Harina oleosa	Farines oléagineuses
METAL SULPHIDE CONCENTRATES	SULFUROS METÁLICOS, CONCENTRADOS DE	CONCENTRÉS DE SULFURES MÉTALLIQUES
Mill feed pellets	Piensos, pellets de	Sous-produits de meunerie en boulettes
Milorganite	Milorganita	Milorganite
Mineral Concentrates	Concentrados de minerales	Concentrés de minerais
MONOAMMONIUM PHOSPHATE	FOSFATO MONOAMÓNICO	MONOPHOSPHATE D'AMMONIUM
Muriate of potash	Muriato de potasa	Muriate de potasse
NEFELINE SYENITE (mineral)	SIENITA NEFELÍNICA (mineral)	SYÉNITE NÉPHÉLINIQUE (mineral)
NICKEL ORE	MINERAL DE NÍQUEL	MINÉRAI DE NICKEL
NICKEL CONCENTRATE	NÍQUEL, CONCENTRADO DE	CONCENTRÉ DE NICKEL
Nickel ore concentrate	Níquel, concentrado de mineral de	Concentré de minéral de nickel
Niger seed, expelled	Níger, semillas de, prensadas	Graines de niger, triturées
Niger seed, extracted	Níger, semillas de, en extracto	Graines de niger, sous-produits de l'extraction
Oil cake	Torta oleaginosa	Tourteaux oléagineux
Palm kernel, expelled	Nuez de palma, prensada	Amande de palmiste, triturée
Palm kernel, extracted	Nuez de palma, en extracto	Amande de palmiste, sous-produit de l'extraction
Peanuts, expelled	Cacahuètes (mani), prensados	Cacahuètes, triturées
Peanuts, extracted	Cacahuètes (mani), en extracto	Cacahuètes, sous-produits de l'extraction
PEANUTS (in shell)	CACAHUETES (con vaina)	CACAHUÈTES (en coques)
PEAT MOSS	TURBA FIBROSA	TOURBE HORTICOLE
PEBBLES (sea)	CANTOS RODADOS (de mar)	GALETS (de mer)
PELLETS (concentrates)	PELLETS (concentrados)	PELLETS (concentrés)
Pellets (cereal)	Cereales, pellets de	Céréales en boulettes
Pencil pitch	Brea en lápices	Brai en crayons
PENTAHYDRATE CRUDE	PENTAHIDRATO EN BRUTO	PENTAHYDRATE BRUT
PERLITE ROCK	PERLITA, ROCA DE	ROCHE PERLITE
PETROLEUM COKE (calcined)	COQUE DE PETRÓLEO (calcinado)	COKE DE PÉTROLE (calciné)
PETROLEUM COKE (uncalcined)	COQUE DE PETRÓLEO (no calcinado)	COKE DE PÉTROLE (non calciné)
PHOSPHATE ROCK (calcined)	FOSFATO EN ROCA (calcinado)	ROCHE PHOSPHATÉE (calcinée)
PHOSPHATE ROCK (uncalcined)	FOSFATO EN ROCA (no calcinado)	ROCHE PHOSPHATÉE (non calcinée)
PHOSPHATE (defluorinated)	FOSFATO (desfluorado)	PHOSPHATE (défluoré)
PIG IRON	HIERRO EN LINGOTES	FONTE EN GUEUSES
PITCH PRILL	BREA EN BOLITAS	BRAI EN GRAINS
Pollard pellets	Trasmochos, pellets de	Recoupette en boulettes
POTASH	POTASA	POTASSE
Potash muriate	Muriato de potasa	Muriate de potasse
POTASSIUM CHLORIDE	CLORURO POTÁSICO	CHLORURE DE POTASSIUM



ENGLISH	SPANISH	FRENCH
POTASSIUM NITRATE UN 1486	NITRATO POTÁSICO, No ONU 1486	NITRATE DE POTASSIUM UN 1486
Potassium nitrate/sodium nitrate (mixture)	Nitrato potásico y nitrato sódico, mezclas de	Nitrate de potassium/nitrate de sodium (en mélange)
POTASSIUM NITRATE MIXTURE	Nitrato potásico en mezcla	NITRATE DE POTASSIUM EN MÉLANGE
POTASSIUM SULPHATE	SULFATO DE POTASIO	SULFATE DE POTASSIUM
Prilled coal tar	Alquitrán de hulla en bolitas	Goudron de houille en grains
PULP WOOD	MADERA PARA PASTA PAPELERA	BOIS À PÂTE
PUMICE	PIEDRA PÓMEZ	PONCE
PYRITE (containing copper and iron)	PIRITA (contiene cobre y hierro)	PYRITE (contenant du cuivre et du fer)
PYRITES, CALCINED	PIRITAS CALCINADAS	PYRITES CALCINÉES
PYRITES	PIRITAS	PYRITES
Pyrites (cupreous, fine, flotation, or sulphur)	Piritas (cuprosas, disgregadas, flotación o azufre)	Pyrites (cuivreuses, fines, flottation, soufre)
Pyritic ash	Cenizas piríticas	Cendres pyriteuses
PYRITIC ASHES (iron)	CENIZAS PIRITOSAS (hierro)	CENDRES PYRITEUSES (fer)
PYRITIC CINDERS	ESCORIAS PIRITOSAS	CENDRES PYRITEUSES
PYROPHYLLITE	PIROFILITA	PYROPHYLLITE
QUARTZ	CUARZO BLANCO	QUARTZ
QUARTZITE	CUARCITA	QUARTZITE
Quicklime	Cal viva	chaux vive
RADIOACTIVE MATERIAL, LOW SPECIFIC ACTIVITY (LSA-I) UN 2912	MATERIALES RADIOACTIVOS, DE BAJA ACTIVIDAD ESPECÍFICA (BAE-I), No ONU 2912	MATIÈRES RADIOACTIVES DE FAIBLE ACTIVITÉ SPÉCIFIQUE (LSA-I) UN 2912
RADIOACTIVE MATERIAL, SURFACE CONTAMINATED OBJECTS (SCO-I) UN 2913	MATERIALES RADIOACTIVOS, OBJETOS CONTAMINADOS EN LA SUPERFICIE (OCS-I), No ONU 2913	MATIÈRES RADIOACTIVES, OBJETS CONTAMINÉS SUPERFICIELLEMENT (SCO-I) UN 2913
Rape seed, expelled	Semillas de colza, prensadas	Graines de colza, triturées
Rape seed, extracted	Semillas de colza, en extracto	Graines de colza, sous-produits de l'extraction
RASORITE (ANHYDROUS)	RASORITA (ANHIDRA)	RASORITE (ANHYDRE)
Rice bran	Arroz, salvado de	Son de riz
Rice broken	Arroz partido	Brisures de riz
Rough ammonia tankage	Amonio en bruto, desechos orgánicos de	Déchets organiques ammoniacaux
ROUNDWOOD	ROLLIZOS	RONDINS
RUTILE SAND	RUTILO, ARENA DE	SABLE DE RUTILE
Safflower seed, expelled	Cártamo, semillas de, prensadas	Graines de carthame, triturées
Safflower seed, extracted	Cártamo, semillas de, en extracto	Graines de carthame, sous-produits de l'extraction
SALT	SAL	SEL
SALT CAKE	SAL, TORTAS DE	PAIN DE SEL
SALT ROCK	SAL GEMA	ROCHE SALINE
Saltpetre	Salitre	Salpêtre

ENGLISH	SPANISH	FRENCH
SAND	ARENA	SABLE
Sand, ilmenite	Arena de ilmenita	Sable, ilménite
Sand, zircon	Arena de circonio	Sable, zircon
Spodumene	Espodumeno	Spoduméne
SAND, HEAVY MINERAL	ARENAS DE MINERALES PESADOS	SABLE, MINÉRAUX LOURDS
SAWDUST	SERRÍN	SCIURE DE BOIS
SAW LOGS	TRONCOS PARA ASERRAR	BOIS DÉBITÉ
SCALE GENERATED FROM THE IRON AND STEEL MAKING PROCESS	CASCARILLA GENERADA EN LOS PROCESOS SIDERÚRGICOS	DÉPÔTS PROVENANT DE LA FABRICATION DU FER ET DE L'ACIER
SCRAP METAL	CHATARRA	FERRAILLE
SEED CAKE, containing vegetable oil UN 1386 (a) mechanically expelled seeds, containing more than 10% of oil or more than 20% of oil and moisture content	TORTA DE SEMILLAS, con una proporción de aceite vegetal, No ONU 1386 a) residuos de semillas prensadas por medios mecánicos, con un contenido de más del 10 % de aceite o más del 20 % de aceite y humedad combinados	TOURTEAUX contenant de l'huile végétale UN 1386 a) Graines triturées par procédé mécanique contenant plus de 10 % d'huile ou plus de 20 % d'huile et d'humidité combinées
SEED CAKE, containing vegetable oil UN 1386 (b) solvent extraction and expelled seeds, containing not more than 10% of oil and when the amount of moisture is higher than 10%, not more than 20% of oil and moisture combined	TORTA DE SEMILLAS, con una proporción de aceite vegetal, No ONU 1386 b) residuos de la extracción del aceite de las semillas con disolventes o por prensado, con un contenido de no más del 10 % de aceite o, si el contenido de humedad es superior al 10 %, no más del 20 % de aceite y humedad combinados	TOURTEAUX contenant de l'huile végétale UN 1386 b) Sous-produits de l'extraction au solvant ou graines triturées contenant au maximum 10 % d'huile et, si la teneur en humidité est supérieure à 10 %, pas plus de 20 % d'huile et d'humidité combinées
SEED CAKE UN 2217	TORTA DE SEMILLAS, No ONU 2217	TOURTEAUX UN 2217
SEED CAKE (non-hazardous)	TORTA DE SEMILLAS (no entraña riesgos)	TOURTEAUX (non dangereux)
Seed expellers, oily	Semillas oleosas, torta de presión de	Expellers oléagineux
SILICOMANGANESE	SILICOMANGANESO	SILICOMANGANÈSE
SILICON SLAG	ESCORIA DE SILICIO	SCORIES DE SILICIUM
SILVER LEAD CONCENTRATE	PLATA Y PLOMO, CONCENTRADO DE	CONCENTRÉ DE PLOMB ARGENTIFÈRE
Silver lead ore concentrate	Plata y plomo, concentrado de mineral de	Concentré de minerai de plomb argentifère
Sinter	Sinterizado	Agglomérés
Slag, granulated	Escoria granulada	Scories, en grains
SLIG, iron ore	SLIG (mineral de hierro)	SLIG (minerai de fer)
SODA ASH	SOSA, CENIZA DE	SOUDE DU COMMERCE
SODIUM NITRATE UN 1498	NITRATO SÓDICO, No ONU 1498	NITRATE DE SODIUM UN 1498
SODIUM NITRATE AND POTASSIUM NITRATE MIXTURE UN 1499	NITRATO SÓDICO Y NITRATO POTÁSICO, EN MEZCLA, No ONU 1499	NITRATE DE SODIUM ET NITRATE DE POTASSIUM EN MÉLANGE UN 1499
Soyabean, expelled	Soja, prensada	Graines de soja, triturées

ENGLISH	SPANISH	FRENCH
Soyabean, extracted	Soja, en extracto	Graines de soja, sous-produits de l'extraction
SOLIDIFIED FUELS RECYCLED FROM PAPER AND PLASTICS	COMBUSTIBLES SOLIDIFICADOS RECICLADOS DE PAPELES Y PLÁSTICOS	COMBUSTIBLES SOLIDIFIÉS RECYCLÉ À PARTIR DE PAPIER ET DE PLASTIQUE
SPENT CATHODES	CÁTODOS AGOTADOS	CATHODES USÉES
SPENT POTLINER	CUBAS ELECTROLÍTICAS AGOTADAS	REVÊTEMENT USÉ DES CUVES
SPODUMENE (UPGRADED)	ESPODÚMENO (ENRIQUECIDO)	SPODUMÈNE (ENRICHI)
STAINLESS STEEL GRINDING DUST	ACERO INOXIDABLE, POLVO DEL RECTIFICADO DE	ACIER INOXYDABLE, POUSSIÈRE DE MEULAGE
Steel swarf	Acero, virutas de	Rognures d'acier
Stibnite	Estibina	Stibnite
STONE CHIPPINGS	GRAVILLA	PIERRES CONCASSÉES
Strussa pellets	Strussa, pellets de	Strussa en boulettes
SUGAR	AZÚCAR	SUCRE
SULPHATE OF POTASH AND MAGNESIUM	SULFATO DE POTASA Y MAGNESIO	SULFATE DE POTASSIUM ET DE MAGNÉSIIUM
Sulphide concentrates	Sulfuros, concentrados de	Concentrés sulfurés
SULPHUR UN 1350 (crushed lump and coarse grained)	AZUFRE, No ONU 1350 (en terrones triturados o en polvo de grano grueso)	SOUFRE UN 1350 (concassé en morceaux et en poudre à gros grains)
SULPHUR (formed, solid)	AZUFRE (sólido con forma)	SOUFRE (solide, moulé)
Sunflower seed, expelled	Girasol, semillas de, prensadas	Graines de tournesol, triturées
Sunflower seed, extracted	Girasol, semillas de, en extracto	Graines de tournesol, sous-produits de l'extraction
SUPERPHOSPHATE	SUPERFOSFATO	SUPERPHOSPHATE
SUPERPHOSPHATE (triple, granular)	SUPERFOSFATO (triple granular)	SUPERPHOSPHATE (triple, granuleux)
Swarf	Virutas	Rognures
TACONITE PELLETS	TACONITA, PELLETS DE	TACONITE EN PELLETS
TALC	TALCO	TALC
TANKAGE	DESECHOS ORGÁNICOS	DÉCHETS ORGANIQUES
Tankage fertilizer	Fertilizante orgánico	Engrais à base de déchets organiques
TAPIOCA	TAPIOCA	TAPIOCA
TIMBER	MADERAJE	BILLES DE BOIS
Toasted meals	Harinas tostadas	Farines grillées
Triple superphosphate	Superfosfato triple	Superphosphate triple
UREA	UREA	URÉE
VANADIUM ORE	VANADIO, MINERAL DE	MINÉRAI DE VANADIUM
VERMICULITE	VERMICULITA	VERMICULITE
WHITE QUARTZ	CUARZO BLANCO	QUARTZ BLANC
WOODCHIPS	MADERA, ASTILLAS DE	COPEAUX DE BOIS
WOOD PELLETS CONTAINING ADDITIVES AND/OR BINDERS	PELLETS DE MADERA QUE CONTIENEN ADITIVOS Y/O AGLUTINANTES	GRANULÉS (PELLETS) DE BOIS CONTENANT DES ADDITIFS OU LIANTS
WOOD PELLETS NOT CONTAINING ANY ADDITIVES AND/OR BINDERS	PELLETS DE MADERA QUE NO CONTIENEN ADITIVOS NI AGLUTINANTES	GRANULÉS (PELLETS) DE BOIS NE CONTENANT AUCUN ADDITIF OU LIANT

ENGLISH	SPANISH	FRENCH
Wood Products – General	Productos generales de madera	Produits du bois – Généralités
WOOD TORREFIED	MADERA TORRADA	BOIS TORRÉFIÉ
ZINC AND LEAD CALCINES (mixed)	CINC Y PLOMO, CALCINADOS DE (en mezclas)	ZINC ET PLOMB CALCINÉS (en mélange)
ZINC AND LEAD MIDDINGS	CINC Y PLOMO, MIXTOS DE	MIXTES DE ZINC ET DE PLOMB
ZINC ASHES UN 1435	CINC, CENIZAS DE, No ONU 1435	CENDRES DE ZINC UN 1435
ZINC CONCENTRATE	CINC, CONCENTRADO DE	CONCENTRÉ DE ZINC
Zinc dross, residue or skimmings	Cinc (escoria de, residuos de o espuma de)	Zinc, crasses, résidus, laitier
Zinc ore, burnt	Cinc, mineral quemado de	Mineral de zinc, brûlé
Zinc ore, calamine	Cinc, mineral de, calamina	Mineral de zinc, calamine
Zinc ore, concentrates	Cinc, mineral de, concentrados	Mineral de zinc, concentrés
Zinc ore, crude	Cinc, mineral de, bruto	Mineral de zinc, brut
ZINC SINTER	CINC SINTERIZADO	AGGLOMÉRÉS DE ZINC
ZINC SLAG	CINC, ESCORIA DE	SCORIES DE ZINC
ZINC SLUDGE	CINC, FANGOS DE	BOUES DE ZINC
Zinc sulphide	Sulfuro de cinc	Sulfure de zinc
Zinc sulphide (blende)	Sulfuro de cinc (blenda)	Sulfure de zinc (blende)
ZIRCON KYANITE CONCENTRATE	CONCENTRADO DE CIANITA DE CIRCONIO	CONCENTRÉ DE KYANITE ET DE ZIRCON
ZIRCONSAND	CIRCONIO, ARENA DE	SABLE DE ZIRCON

## 批 示 摘 錄

## Extractos de despachos

透過行政長官辦公室主任二零二二年一月十八日批示：

Por despacho da chefe do Gabinete do Chefe do Executivo, de 18 de Janeiro de 2022:

浦瑪莉——根據現行第12/2015號法律《公共部門勞動合同制度》第四條第二款、第三款、第六條第一款及按照現行第14/1999號行政法規《行政長官及司長辦公室通則》第十九條第十二款的規定，其在行政長官辦公室擔任職務的行政任用合同續期一年，並以附註形式修改該合同第三條款，晉級至第一職階一等高級技術員，薪俸點485點，自二零二二年四月七日起生效。

Pou Ma Lei — renovado o contrato administrativo de provimento, pelo período de um ano, para o exercício de funções no Gabinete do Chefe do Executivo, bem como alterada, por averbamento, a cláusula 3.<sup>a</sup> do referido contrato ascendendo a técnica superior de 1.<sup>a</sup> classe, 1.<sup>o</sup> escalão, índice 485, a partir de 7 de Abril de 2022, nos termos dos n.ºs 2 e 3 do artigo 4.<sup>o</sup> e do n.º 1 do artigo 6.<sup>o</sup> da Lei n.º 12/2015 (Regime do Contrato de Trabalho nos Serviços Públicos), em vigor, conjugados com o n.º 12 do artigo 19.<sup>o</sup> do Regulamento Administrativo n.º 14/1999 (Estatuto do Gabinete do Chefe do Executivo e dos Secretários), em vigor.

透過行政長官於二零二二年二月十日作出的批示：

Por despacho de S. Ex.<sup>a</sup> o Chefe do Executivo, de 10 de Fevereiro de 2022:

張作文——根據第15/2009號法律《領導及主管人員通則的基本規定》第五條、第26/2009號行政法規《領導及主管人員通則的補充規定》第八條，以及第20/2018號行政法規《政策研究和區域發展局的組織及運作》第三條第一款的規定，因具備適當經驗及專業能力履行職務，其擔任政策研究和區域發展局局長的定期委任，自二零二二年三月十五日起續期一年。

Cheong Chok Man — renovada a comissão de serviço, pelo período de um ano, como director da Direcção dos Serviços de Estudo de Políticas e Desenvolvimento Regional, nos termos das disposições conjugadas dos artigos 5.<sup>o</sup> da Lei n.º 15/2009 (Disposições Fundamentais do Estatuto do Pessoal de Direcção e Chefia), 8.<sup>o</sup> do Regulamento Administrativo n.º 26/2009 (Disposições complementares do estatuto do pessoal de direcção e chefia), e do n.º 1 do artigo 3.<sup>o</sup> do Regulamento Administrativo n.º 20/2018 (Organização e funcionamento da Direcção dos Serviços de Estudo de Políticas e Desenvolvimento Regional), por possuir experiência e capacidade profissional adequadas para o exercício das suas funções, a partir de 15 de Março de 2022.

二零二二年二月十一日於行政長官辦公室

辦公室主任 許麗芳

Gabinete do Chefe do Executivo, aos 11 de Fevereiro de 2022. — A Chefe do Gabinete, Hoi Lai Fong.