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**NICKEL ORE:  
STOP, THINK, VERIFY!**



**Cargo Liquefaction**  
**Hazards and Developments**

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Technical Manager  
Intercargo







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Cargo Liquefaction

**Introducing Intercargo**

- INTERCARGO: International Association of Dry Cargo Shipowners, established in 1980; >160 Members with > 900 ships
- Promotion of Safety, Quality, Efficiency, Protection of the Environment - a voice for the industries we represent
- Observer status at the International Maritime Organization (IMO)

[www.intercargo.org](http://www.intercargo.org)



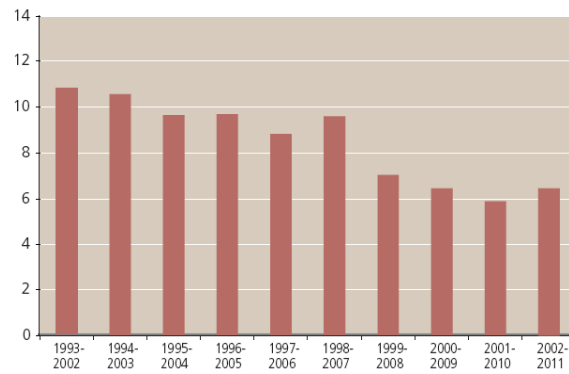
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**Intercargo: Benchmarking Bulk Carriers 2011-12**

Trends - Annual average number of ships lost

1993-2002	10.9
1994-2003	10.5
1995-2004	9.6
1996-2005	9.7
1997-2006	8.9
1998-2007	9.6
1999-2008	7.1
2000-2009	6.6
2001-2010	5.9
2002-2011	6.8

Annual average number of ships lost 1993 - 2011



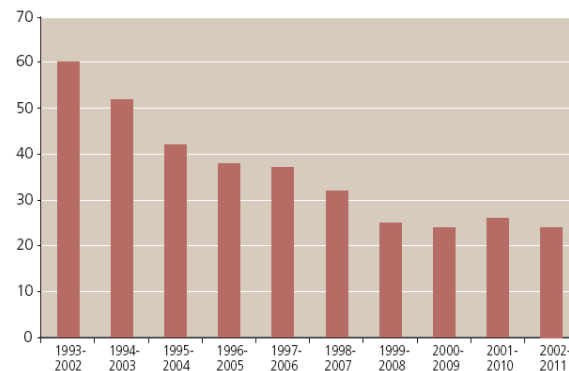
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**Intercargo: Benchmarking Bulk Carriers 2011-12**

Trends - Annual average number of lives lost

1993-2002	60
1994-2003	52
1995-2004	42
1996-2005	38
1997-2006	37
1998-2007	32
1999-2008	25
2000-2009	24
2001-2010	26
2002-2011	24

Annual average number of lives lost 1993 - 2011



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Iron Ore Fines



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Intercargo Guide for the Safe Loading of Nickel Ore



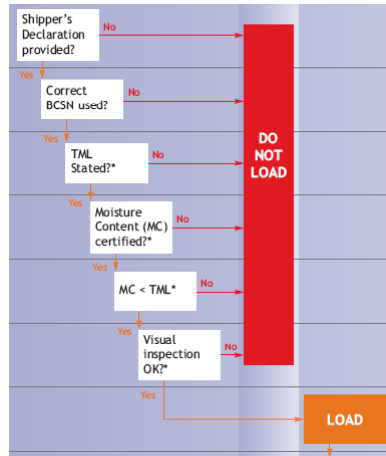
Aims to:

- Raise awareness
- Engage multiple stakeholders
- Encourage due diligence
- Identify responsibilities
- Ship cargo safely

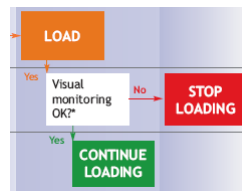


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**Intercargo Guide for the Safe Loading of Nickel Ore**



**\*Independent Testing:** Where doubt exists concerning any cargo declaration information (e.g certification shows MC within or below TML and yet the cargo appears wet/splatters when loaded), or there is suspicion that the cargo has been mis-represented, independent cargo testing to determine the FMP, TML and actual moisture content of the cargo to be loaded should be carried out.



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**Intercargo Guide for the Safe Loading of Nickel Ore: Can Tests**



†Can Tests may indicate when a cargo has exceeded its FMP – confirming that the cargo should be rejected and independent re-testing carried out. The Can Test **cannot demonstrate the cargo moisture content is less than the TML**, this can only be determined by laboratory tests. A cargo **cannot be accepted for loading based on** Can Tests alone.





### Liquefaction – IMSBC Code Amendments

- A new sentence in the definition of Competent Authority at the end of paragraph 1.7.7 (Intercargo proposal) ***“The competent authority shall operate independently from the shipper.”***
- An addition to paragraph 4.3.2 requiring the certificate for TML and moisture content to be issued by ***“..an entity recognised by the Competent Authority of the port of loading”*** (Chinese proposal).
- A new paragraph 4.3.3 (French proposal supported by Intercargo) requiring the shipper to have ***“... procedures for sampling, testing and controlling moisture content...”*** and for these procedures to be ***“... approved by the competent authority of the port of loading”***.



### Liquefaction – IMSBC Code Amendments

- A new paragraph 4.3.4 (Intercargo proposal) requiring the procedures under 4.3.3 to include ***“... procedures to protect the cargo on ... barges from any precipitation and water ingress”***.
- A new paragraph 4.4.3 (Intercargo proposal) requiring the shipper, for cargoes that may liquefy, to ***“... facilitate access to stockpiles for the purpose of inspection, sampling and subsequent testing by the ship’s nominated representative.”***
- A new paragraph 8.4.2 (Intercargo proposal) clarifying the limitations of the can test, stating ***“If samples remain dry following a can test, the moisture content of the material may still exceed the Transportable Moisture Limit (TML)”***



**Liquefaction – IMSBC Code Amendments****NICKEL ORE****Description**

Nickel ore varies in colour. There are several types of ore of variable particle size and moisture content. Some may contain clay-like ores. For concentrates, see NICKEL CONCENTRATE.

**Characteristics**

Angle of repose	Bulk density (kg/m <sup>3</sup> )	Stowage factor (m <sup>3</sup> /t)
Not applicable	1400 to 1800	0.55 to 0.71

- Mandatory 1 Jan 2015
- Possible new test for DSC 18 (Sept 2013) ...

**IMO Technical Co-operation Programme**

**National awareness workshop on the implementation of the international maritime solid bulk cargoes (IMSBC) code, with special reference to cargoes that may liquefy.**

Jakarta, Indonesia 12<sup>th</sup> to 14<sup>th</sup> of December 2012



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Thank you

