

# Apply occupational health and safety precautions and measures

# Fuel characteristic presented on a Safety Data Sheet

# MSDS

1. Identyfikation
2. Hazard(s) Identyfikation
3. Composition/Information on Ingredients
4. First Aid Measures
5. Fire – Fighting Measures
6. Accidental Release Measures
7. Handling and Storage
8. Exposure Controls/ Personal Protection

# MSDS

9. Physical and Chemical Properties
10. Stability and Reactivity
11. Toxicological Information
12. Ecological Information
13. Disposal Considerations
14. Transport Information
15. Regulatory Information
16. Other Information

# MSDS - LNG

## Emergency Overview

Extremely flammable

Extremely cold liquid and gas under pressure.

May cause skin, eye, and respiratory tract irritation

Asphyxiant at high concentrations

May cause central nervous system depression

Contents under pressure

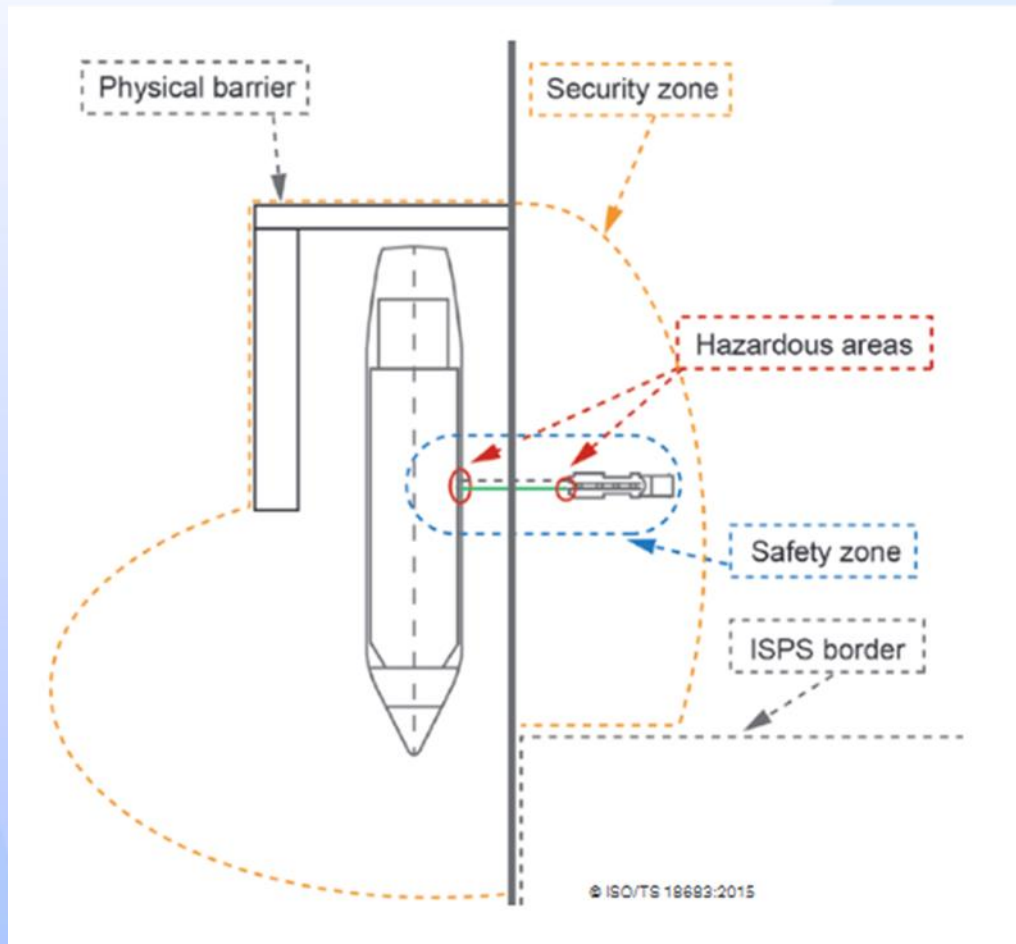
Keep at temperatures below 52°C / 125°F

Physical State Cryogenic Liquid.

# MB 3 Apply occupational health and safety precautions and measures

- Description of safety means applied during LNG operation
- Basic knowledge on Medical First Aid with references to a Safety Data Sheets

# Safety and security zones



# Hazard zone

Zones - defines the general nature (or properties) of the hazardous material - if its gas or dust, and the probability of the hazardous material in the surrounding atmosphere



# IGF Code

- Hazardous area zone 0
- Hazardous area zone 1
- Hazardous area zone 2

# Hazard area

***Hazardous area*** means an area in which an explosive gas atmosphere or a flammable gas (flash point below 60°C) is or may be expected to be present, in quantities such as to require special precautions for the construction, installation and use of electrical equipment

***Non-hazardous area*** means an area in which an explosive gas atmosphere is not expected to be present in quantities such as to require special precautions for the construction, installation and use of equipment

# Protective Clothing and Equipment

- Eye/Face Protection;
- Skin protection;
- Respiratory Protection;
- Other/General Protection.



# Safety work practices














- Enclosed spaces
- Enclosed spaces entry procedures
- Work permits

# Enclosed Space Entry

## Safety procedures for entering closed compartments

Because of the **DANGER** that exists, **ENTRY** to an enclosed space should only be considered for **ESSENTIAL** reasons. The correct procedure **MUST** be followed. It is recommended that a **CHECK LIST** is used to complete the procedure. Only in an emergency should entry be considered using a Self Contained Breathing Apparatus. Seldom will any space remain safe. **CONSTANT** safety checks are essential. Someone's **LIFE** is usually at **RISK**.

 This is a Mandatory Sign

- |   |  |
|---|--|
| <p><b>1</b>  CLEAN cargo tanks and lines to remove as much oil sediment and sludge as possible.</p>  | <p><b>7</b>  COMMUNICATION tested and in good order between person at entrance and those entering. RESCUE PROCEDURES PLANNED &amp; UNDERSTOOD.</p>                          |
| <p><b>2</b>  VENTILATE thoroughly and CONTINUOUSLY before and during operation. (PURGE with Inert Gas first if applicable).</p>  | <p><b>8</b>  SAFETY EQUIPMENT must be worn, hard hats, boots, gloves, harness, protective clothes, personal gas monitor must be of approved type and in good condition.</p> |
| <p><b>3</b>  TEST ATMOSPHERE before and during operation at various levels and locations. OXYGEN 20,9%, FLAMMABLE GAS and TOXIC VAPOR, shouldn't exceed Company Regulations.</p> | <p><b>9</b>  RESCUE EQUIPMENT at entrance and tested: Breathing Apparatus, Recovery Gear &amp; Resuscitators.</p>   |
| <p><b>4</b>  TOOLS mustered at entrance and correct for intended job. Recheck tools on completion of the task.</p>   | <p><b>10</b>  RESPONSIBLE PERSON at entrance for all operations.</p>  |
| <p><b>5</b>  ILLUMINATION adequate and certified for hazardous area.</p>   | <p><b>11</b>  CHECK LIST &amp; ENTRY PERMIT completed and SIGNED by a Senior Officer or the Master.</p>   |
| <p><b>6</b>  ACCESS adequate. Ladders and safety rails must be checked and in good condition.</p>  | <p><b>12</b>  PERIOD OF VALIDITY shown on ENTRY PERMIT should not be exceeded. Another Permit must be issued.</p>   |



**ADJACENT SPACES** may be a **HAZARD** and leak into a safe compartment. Such spaces must also be rendered **SAFE** throughout the operation.



**NO HOT WORK** The procedure above is not adequate for Hot Work. Company Regulations must be **STRICTLY COMPLIED** with at all times whenever work is to be conducted in any space that has at any time contained a **HAZARDOUS SUBSTANCE** or **ATMOSPHERE**.

# Work permits

- Hot work
- Cold work
- Electrical isolation
- Other hazardous tasks.



# First Aid

- Medical First Aid Guide (MFAG)
- Material Safety Data Sheet (MSDS)

# First Aid - MSDS

- Eye Contact
- Skin Contact
- Inhalation
- Ingestion
- Notes to Physician



# Eye Contact

Contact with product may cause frostbite. In case of frostbite or freeze burns, gently soak the eyes with cool to lukewarm water.

**DO NOT WASH THE EYES WITH HOT WATER.**

Open eyelids wide to allow liquid to evaporate. If the person cannot tolerate light, protect the eyes with a bandage or handkerchief. Do not introduce ointment into the eyes without medical advice. Seek immediate medical attention.

# Skin contact

Wash off immediately with plenty of water. If skin irritation persists, call a physician. For dermal contactor suspected frostbite, remove contaminated clothing and flush affected areas with lukewarm water.

**DO NOT USE HOT WATER.**

A physician should see the patient promptly if contact with the product has resulted in blistering of the dermal surface or in deep tissue freezing.

# WARNING

The burning of any hydrocarbon as a fuel in an area without adequate ventilation may result in hazardous levels of combustion products, including carbon monoxide, and inadequate oxygen levels, which may cause loss of consciousness, serious injury, or death.