

UN/SCETDG/34/INF.32/Add.1

COMMITTEE OF EXPERTS ON THE TRANSPORT OF DANGEROUS GOODS AND ON THE GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS

Sub-Committee of Experts on the
Transport of Dangerous Goods

Thirty-fourth session
Geneva, 1-9 December 2008
Item 8 of the provisional agenda

GLOBAL HARMONIZATION OF TRANSPORT OF DANGEROUS GOODS REGULATIONS WITH THE UN MODEL REGULATIONS

Outcome of the 13th Session of the IMO Dangerous goods, Solid Cargoes and Containers (DSC)
Sub-Committee meeting (London, 22-26 September 2008)

Addendum to INF.32

Transmitted by the International Maritime Organization (IMO)

Report of the fire incident which occurred in Bandar Abbas Port Container Terminal, Iran.



SUB-COMMITTEE ON DANGEROUS
GOODS, SOLID CARGOES AND
CONTAINERS
13th session
Agenda item 6

DSC 13/6/11
21 July 2008
Original: ENGLISH

CASUALTY AND INCIDENT REPORTS AND ANALYSIS

Report of the fire incident which occurred in Bandar Abbas Port Container Terminal, Iran

Submitted by the Islamic Republic of Iran

SUMMARY

<i>Executive summary:</i>	This document contains a fire incident report which occurred in Bandar Abbas Port, located in Southern Iran, bordering the Persian Gulf
<i>Strategic direction:</i>	5.2
<i>High-level action:</i>	5.2.3
<i>Planned output:</i>	5.2.3.1
<i>Action to be taken:</i>	Paragraph 17
<i>Related documents:</i>	None

Introduction

1 Bandar Abbas port terminal workers noticed a white fume stemming out of a container containing 15 tons of Methyl Ethyl Ketone Peroxide on 17.5.2007 at 11:40 am (local time). Consequently, the workers immediately informed the fire brigade and removed the container from among the adjacent containers by a reachstacker. The container was cooled by the firefighters but it exploded during removal and fortunately the reachstacker operator survived by rapidly escaping of the scene. The fire was extinguished by the firefighters after 45 minutes.

Cargo specification

2 Product: Methyl Ethyl ketone peroxide (Organic peroxides –type D)
Methyl ethyl ketone peroxide (MEKP) is an organic peroxide, a high explosive similar to acetone peroxide. MEKP is a colorless, oily liquid whereas acetone peroxide is a white powder at standard conditions for temperature and pressure; MEKP is slightly less sensitive to shock and temperature, and more stable in storage.

For reasons of economy, this document is printed in a limited number. Delegates are kindly asked to bring their copies to meetings and not to request additional copies.

Dilute solutions of 30 to 60% MEKP are used in industry and by hobbyists as the catalyst which initiates the polymerization of polyester resins used in glass-reinforced plastic, and casting. For this application, MEKP is dissolved in dimethyl phthalate, cyclohexane peroxide, or diallyl phthalate to reduce sensitivity to shock.

UN 3105	Class 5.2
Flash point: 82° C	Extinguishing: carbon dioxide, water, water fog or foam
Special fire fighting procedure: fire fighters should wear full protective clothing and self contained breathing apparatus when fighting fire involving this product. Cool containers with water. Unusual fire & explosion hazards: heat produces toxic vapors .heat may cause violent rupture of containers.	
Stability: stable	Polymerization: will not polymerize
Materials to avoid: strong acids, strong alkalis	Sub risk class: No subsidiary risks
Packaging group: I	Packing type: Carton
Net weight: 15187 KG	

Safe handling information

3 Methyl Ethyl Ketone peroxide decomposes at elevated temperature or in fire, burns vigorously, immiscible with water except for acetyl acetone peroxide, tert butyl hydro peroxide.

4 There is an extreme risk of an explosion from exposure to shock, friction, flame, or other sources of ignition. It is dangerously reactive and may decompose violently. Contact with water or moist air liberates irritating gases. Contents may develop pressure if exposed to water. It is also very toxic. It may be fatal if inhaled, absorbed through the skin or swallowed and it is corrosive to the eyes, skin and respiratory tract. It may cause lung injury although the effects may be delayed. A face mask or respirator is advised when these materials are being transported in poorly ventilated areas.

5 Rubber or PVC gloves and safety glasses should be worn. It is advisable to store in dark place below 25°C , keep away from any heat sources such motors, steam pipes, avoid shock and friction and take care for fire. The ventilated containers should be used for MEKP transportation to prevent accumulation of the inner pressure. MEKP not to be transported with class 1, class 2.1, class 2.2, class 2.3 , class 3, class 4, class 5.2, class 6, class 7, class 8 , class 9.

Incident report

6 The ship carrying the container arrived in Bandar Shahid Rajae port in 6 May 2007 at 22:15 and berthed at 7 May 2007 in Berth No.8. The discharge operation started at 1:26 am and lasted for about 18 hours involving 260 boxes of 20ft container and 482 boxes of 40ft container.

Container YMLU3138213 was unloaded from the ship and moved to the dangerous goods terminal back-up area (*the maximum temperature at this time of the years is around 34 to 36*).

7 Then, in order to prevent the incident from extending to other containers, the workers moved away the adjacent containers by reachstacker. At this time, the firefighter started to cool them by water.

8 But this action was not effective and deteriorated the situation and led the terminal manager to decide to move the container put down by a reachstacker from upper rows out of the

terminal. While being removed, the container suddenly exploded and severely damaged the reachstacker but the operator managed to rapidly leave container and escape of the scene.

9 At this time, the firefighter of the dangerous good terminal with the assistance of the firefighters of adjacent terminal began to extinguish the fire by water and foam. After putting out the fire, the container was moved out of the terminal to a nearby area for the fear that the container might burn again.

Incident Analysis

10 It is to be noted that the other containers entering the terminal with the same cargo in an identical temperature did not face similar incident. This is indicative of the fact that some other reason has caused the incident, i.e falling of cargo on the pallets and flammable materials due to inappropriate cargo lashing within the container.

11 On the other hand, temperature contributed to the incidents as it is around 40 in the Port and also the temperature inside the container typically mounts to 55 in exposure of the sun heat. Furthermore, falling of cargo on the wood pallets creates further heat increasing the temperature within the container. Also, the heat decomposes dangerous goods of class 5 providing the oxygen required to cause the fire. A precise analysis demonstrates that the causes of the incident fall into 3 categories:

- .1 indirect cause;
- .2 direct cause; and
- .3 the main cause.

12 Generally dangerous goods or a certain amount of energy in unsafe situation are potential to cause a fire incident at a minimum level. Actually it is the indirect cause of the incident.

13 Direct cause involves unsafe actions or situations. Therefore, it is concluded that direct reason of this incident constitutes internal temperature of the container as well as not employing the refrigerated container for transportation of these cargos.

14 Finally, the main cause of the incident is inappropriate internal lashing of container leading to the fall of the cargos and has created the incident in weather condition of the Port.

Iran's views/comment

15 With due consideration to the above accident report and analysis, lashing of dangerous cargo is of great importance. Therefore, all guidelines relating to the cargo stuffing should be strictly complied with as the likelihood of any falling of dangerous goods can endanger the safety of ships and ports.

16 It is proposed that:

- .1 it should be indicated in column 17 of the dangerous cargo list: Properties and observation, that the fume stemming from the Methyl Ethyl Ketone Peroxide (MEKP) is poisonous; and
- .2 in case, these kinds of dangerous goods are destined to the ports like Bandar Abbas where the temperature and humidity are relatively high during April to August, they need to be carried in refrigerated containers.

Action requested of the Sub-Committee

17 The Sub-Committee is invited to consider the information above and to take action as appropriate.
