



The Challenges of HNS incidents: MSC CHITRA

Kelly Reynolds, Senior Technical Advisor

Mumbai Seminar, 29th January 2015



Overview



- Assessing the risk
- Deciding upon strategy
- Implementation

HNS issues during MSC CHITRA





- Containership (33,113 GT, 2,314 TEU)
- Approximately 1,000 MT of heavy fuel oil lost
- Over 300 containers lost overboard
- Carrying 31 containers classified as Dangerous Goods

Oil and HNS



Understanding what is where

PFRD768_IMDG v5.29
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 Run: 12-MAR-10 04:51 PM
 Agent: CMA CGM Agences France SAS Phone: Fax: E-Mail:

Dangerous Cargo Manifest

(As required by SOLAS 74, chapter VII, regulation 4.5, MARPOL 73/78, annex III, regulation 4(3) and paragraph 5.4.3 of the IMDG Code)


Vessel : CMA CGM STRAUSS	Flag : BAHAMAS	Load Port : BARCELONA	Transhipment Port : MALTA(FREEPORT)
Voyage : ME25E	Call Sign : C6TH6	ETD : 14-FEB-10	Discharge Port : DAMMAM
Official no : 6280641	Captain's Name :	Transit Port : GENOA	Final Place of Delivery :
Operator : ANL CONTAINER LINE PTY LTD			

Container No.	ISO Size Type	Booking No.	Part Load Booking No.	Stowage No.	(1) Proper Shipping Name (2) Technical Name (3) Flash Point (°C) (4) Limited Quantity or Excepted Quantity (5) Marine Pollutant (6) Emergency Response Telephone Number	Gross Weight (KGM)	Net Weight (KGM)	IMDG Class	UN no	PG	EMS	MPA d.	Quantity & Packing Outer Inner
BWTL2250094	22T0	ACW100450		0	(1) FLAMMABLE SOLID, ORGANIC, MOLTEN, N.O.S. (2) ISOPROPANOL MIXTURE (3) (4) (5) (6) 938642100 Approval Number: 201000251654	23,000.000	21,000.000	4.1	3176	II	F-A,S-H		
UTCU4852532	22T0	ACW100450		0	(1) FLAMMABLE SOLID, ORGANIC, MOLTEN, N.O.S. (2) ISOPROPANOL MIXTURE (3) (4) (5) (6) 34038642100 Approval Number: 201000251653	23,000.000	21,000.000	4.1	3176	II	F-A,S-H		

AGENT'S SIGNATURE: _____
DATE: _____


MASTERS SIGNATURE: _____
DATE: _____



Understanding what is where



02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100
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Understanding what is where




SMIT Salvage

- During the salvage operation, one container with Aluminium phosphide broke open and the contents were lost in the hull and sea
- Contained 4,200 kg of AP in 2,800 x 1.5 kg canisters
- Reports received of canisters coming ashore

Understanding the risk





United Phosphorus Limited

UNITED PHOSPHORUS LIMITED
MATERIAL SAFETY DATA SHEET


SECTION 1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION			
Address	United Phosphorus Ltd 8-11, G.I.C. Vape Queret, India	For contact	For emergency + 91 260 243716-78
EU Number (F.R.I.C.S.)	844 - 00 - 0		
Product name	Aluminium phosphide	Trade name	QuickPhos
Chemical family	Inorganic salt		

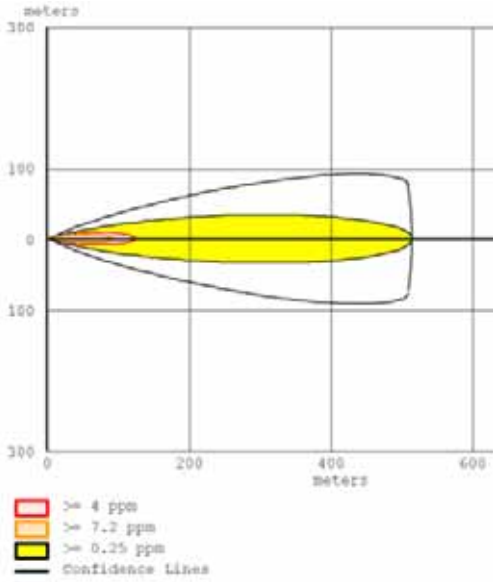
SECTION 2. COMPOSITION INFORMATION ON INGREDIENTS		
Component	Aluminium phosphide	Component Percent
Substance	Phosphide	57 %
CAS registry Number	20628-72-8	

SECTION 3. HAZARD IDENTIFICATION			
GPPA Ratings (GHS 04)	Health	Env	Reactivity
	3	4	2
Emergency overview	Colour	Dark gray or blackish	Physical form
Major hazards	Hazardous if inhaled, respiratory tract irritation, skin irritation, eye irritation		
Hazards	Flammable solid; reacts violently with water to generate toxic and / or flammable gases. Contact with water or moist air may release flammable gases.		
Physical Hazards			

Getting expert advice





■ >= 4 ppm
■ >= 7.2 ppm
■ >= 0.25 ppm
 Confidence lines

CHEMDATA 2010.1
For more information about CHEMDATA, visit the ITCI website at www.itoci.com.sg
Expires: 30/06/2011
90379C0-00180AF1

ALUMINIUM PHOSPHIDE PESTICIDE

S.A.C. 09
 UN No. 2541
 MF CODE 09
 UN HAZARD 4.1

PRODUCT NAME
 *ALUMINIUM PHOSPHIDE PESTICIDE

IDENTIFICATION
 Doc. No. 09020 EC No. 090

FORM
 Solid Pellets

PROTECTION
 *Liquid tight chemical protection suit with breathing apparatus

HAZARDS
 *Toxic dust

CHEMDATA 2010.1
For more information about CHEMDATA, visit the ITCI website at www.itoci.com.sg
Expires: 05/04/2011
90379C0-00180AF1

PHENYLENE

S.A.C. 09
 UN No. 2708
 MF CODE 09
 UN HAZARD 2.3.2.1

PRODUCT NAME
 *PHENYLENE


IDENTIFICATION
 Doc. No. 09020 EC No. 09000


FORM
 Gas, Corrosive, Flammable Gas

PROTECTION
 *Liquid tight chemical protection clothing in conjunction with breathing apparatus and fire suit should be worn. The fire suit to provide additional thermal protection against the hazards provided by liquefied flammable gas with a boiling point below 0°C.

HAZARDS

Deciding on the strategy






MSC CHITRA VLSR
Department of Shipping, Government of India

This is a shoreline strategy plan outlining the methodology for the collection and disposal of suspect **containers** that may have originated from the MSC CHITRA.

Name	Date	Name	Director in charge
Mumbai	28th August 2012	DIP JAINDE JAINDE	DIP JAINDE VLSR

Contents

1. Introduction
2. The International Maritime Dangerous Goods Code
3. Description of the Dangerous Goods
 - 3.1 Cargo Description
4. Risk Assessment
 - 4.1 Information Available
 - 4.2 Container Salvage
5. Substance Characteristics
 - 5.1 Sodium Hydroxide
 - 5.2 Hydrogen Peroxide
 - 5.3 Organophosphorus Pesticides
 - 5.4 Aluminium Phosphide
 - 5.5 Environmentally hazardous sub solid
6. Actions taken by MSC to further reduce any risks to public health
7. Conclusions



MSC CHITRA
 28th
 28th August 2012

MSC CHITRA SHORELINE RESPONSE

Mumbai, India

DANGEROUS GOODS RISK ASSESSMENT

Distribution List
ITOPF - MSC


Author: Chis Moore

Position: Senior Spill Response Specialist

Reviewed by:


28th August 2012

Public health issues during MSC CHITRA



HAZARDOUS CHEMICAL ADVISORY

Keep an eye out for one-litre aluminium containers that could still have potentially harmful contents inside.




These are 10 inch metal containers (pictured here).

The contents of the container are hazardous IF FOUND:

- Do not touch it.
- Stay away.
- Immediately contact: +91 xxxxxxxxxx

- Clear, concise information distributed via leaflets
- Consideration of credible worst case scenario in risk assessment
- Monitoring and collection of lost cargo


HNS impacting shoreline clean-up work




United Phosphorus Ltd.

EMERALD HOUSE,
SARDAR PUNJ,
15th ROAD, KHARJ (PO),
RAJMANSI - 401 602, INDIA.
Head Office:
5-11, QRD, Vija - 399 195
Dujana


Phone: (91-22) 2848 8000
Fax : (91-22) 2604 1600



PHS Reading of Elephanta area on 29.08.2010			
S.N.	Place of Reading	Time(SI)	Level of PHS
Location Elephanta Island			
1	North sector	11.00 am	Zero ppm
	South Sector	11.35am	Zero ppm
	East Sector(Old Jetty)	11.55am	Zero ppm
	West Sector(New Ferry Jetty)	11.80am	Zero ppm
2	North sector	14.00pm	Zero ppm
	South Sector	14.40pm	Zero ppm
	East Sector(Old Jetty)	15.00 pm	Zero ppm
	West Sector(New Ferry Jetty)	14.20 pm	Zero ppm






for United Phosphorus Ltd



E. Anand Kumar
Vice President - Commercial

Air monitoring – sharing information



SMIT Salvage
SMIT Salvage

- Salvors had a marine chemist dedicated to monitoring harmful gases
- Varying levels of PH_3 detected; changed with wind conditions
- Respirators required to work in some areas; other no-go areas

Other HNS issues






SMIT Salvage
SMIT Salvage

- Rotting perishable goods in monsoon weather – H_2S
- Status of packaging, interactions of cargo

Container processing







SMIT Salvage
SMIT Salvage

- Ability to discharge containers
- Salvors chartered all available barges
- Delays to salvage operation

Duration of response








SMIT Salvage
SMIT Salvage
SMIT Salvage


- Incident occurred in early August, re-floated in late March
- Similar timelines for other containership incidents

A collaborative effort



A collage of logos representing various organizations involved in maritime safety and environmental protection. The logos include: SMIT (Society of Marine Insurance Technicians), Mumbai Port Trust, Mediterranean Shipping Company (MSC), University of Mumbai, Indian Navy, Maharashtra Maritime Board, Maharashtra Pollution Control Board, Ministry of Environment, Forest and Climate Change, Government of India, ITOPF (International Tanker Operators Federation), UPL (United Petroleum Logistics), Oil Spill Response, COMACOE (Coastal Marine Accident Compensation Organisation), Briggs, and The Standard.

Getting expert advice




MAR-ICE NETWORK

INFORMATION SERVICE FOR USE IN MARINE CHEMICAL EMERGENCIES

The slide features a central blue box with the text "MAR-ICE NETWORK" and "INFORMATION SERVICE FOR USE IN MARINE CHEMICAL EMERGENCIES". Below this, there is a horizontal strip of four images: a sign for "CHEMICAL TANKERS", a large red and white chemical tanker ship, a smaller blue and white tanker ship, and a person in a white protective suit. The background of the slide is a photograph of a rocky coastline with waves crashing against the shore.



Assessing the adequacy of a plan



Are:

- **Risks** well assessed? (i.e. most commonly transported chemicals in Indian waters)
- **Response techniques** pre-agreed?
- **Sensitivities** identified and **priorities** for protection agreed?
- Correct **PPE** available?
- Sufficient **resources** and back-up options identified?
- Waste **storage** and final **treatment / disposal** options identified?
- **Roles** and **responsibilities** of all clearly defined?
- **Notification** and **mobilisation** procedures clear?
- Arrangements for **communications** described?
- All aspects of the plan **fully tested** regularly?

Concluding comments

- Responsible Owners of MSC CHITRA
- Good cooperation is essential
- Importance of the assessment phase; need a timely response but assessment must be thorough and be capable of dealing with changes
- Knowing where and how to get expert advice
- Having an IMS that is sufficiently flexible to incorporate external parties who may be invited to provide expert advice
- Having an appreciation of what is necessary and possible
- Dealing with oil and HNS issues can be resource intensive
- Exercising an HNS scenario



Thank You!
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