

Reported accidents and health problems of seafarers onboard vessels carrying fumigated cargo

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International Maritime Health Association

- **Phosphine gas release during cargo discharge**
- **MAIB issues Accident Report No. 21/2013**
- **The UK Marine Accident Investigation Branch (MAIB) issued the report of its investigation into a release of phosphine gas during cargo discharge on board a general cargo vessel in Warrenpoint, Northern Ireland on 5 December 2012.**
- On 5 December 2012, a fumigated cargo of maize was being discharged from the general cargo vessel Arklow Meadow in Warrenpoint, Northern Ireland when it became apparent that the fumigant was still active; fumigant retainers that had been removed from the cargo holds started to smoke.
- Cargo operations were immediately stopped and Arklow Meadow's crew were evacuated to the quayside. The local fire brigade was quickly on the scene and established a 50 meter cordon around the vessel. Houses and retail premises surrounding the port area were also evacuated by the police as a precautionary measure. Eight of Arklow Meadow's 11 crew, and a stevedore who had potentially been exposed to phosphine gas, were taken to hospital for observation and decontamination.



The UK P&I Club


AVOIDING ACCIDENTS

DO NOT pile residues onto an open deck exposed to damp or wet conditions as this may cause a fire and toxic gas hazard.

DO NOT under any circumstances store residues in a closed drum or other sealed container as this may result in an explosion if a flammable phosphine: gas:air mixture ignites spontaneously, accompanied by the continuing escape of toxic phosphine gas.

DO NOT store residues in an open drum exposed to damp or wet conditions.

DO NOT place an open drum of waste in a compartment or locker, such as a forecastle store, because of the risk of build-up of phosphine in the space.

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- Phosphide fumigants can be hazardous, but by carefully following the guidance and warnings in MSC Circulars 1264 and 1396, and the IMSBC Code and the manufacturer's instructions for the disposal of spent or partially spent material, accidents and injury can be avoided.

International guidance and recommendations on fumigation on board ships is contained in **MSC Circulars 1264 and 1396** and the **IMSBC Code**.

- Fumigation in transit should only be carried out at the discretion of the Master
- The Master should be aware of the regulations of the Flag State of Administration having regard to fumigation in transit,
- When phosphine generating formulations (of the type with which this bulletin is concerned) are used, any collected residues may ignite.

Rotterdam 2002

- 303 randomly chosen freight containers was carried out by taking gas samples through the rubber seals of the closed containers doors
- 10 of this containers(3,5%)were under fumigation
- Only 4 of this containers were marked and declared under fumigation



E.J.Wijdeveld

General Cargo"Monika"





Sixteen of 21 seafarers have been evacuated from the one-year old Liberian-registered bulker *Hermann Schoening* due to phosphine gas leaking from cargo holds into the accommodation block.



European Conference

“Don’t get caught by surprise”

23 November 2010

Brussels, Belgium

Statistics

- 18 million containers came into Europe in 2009
- 10 to 20 percent posed a threat
- accidents with fumigated containers happen more often in other areas than harbors
- a new source found involving toxic gases in containers

Random survey in Netherlands

- among 1.053 containers showed that 12% of all containers held excessively high concentration of dangerous gases
- 17 containers were actively fumigated
- 106 containers were not
- Only one of the actively fumigated containers had warning signs on display and carried documents stating the fumigation

2010

Baur X, Poschadel B, Budnik LT

- 10 week period in 2006 in Hamburg, Germany
- Investigated 2113 freight containers
- 1478(70%) containers were contaminated with toxic chemicals
- 761(36%) even exceeded the higher acute reference exposure level

It could happen anywhere...

- . Containers in the News
14 Nov 2009 Benzene in C&A
clothing warehouse
1300 mattresses, possible carcinogenic,
sold in the Netherlands, emitting toxic
vapor's
Truck driver feeling unwell after
cleaning out a container.
Aluminium phosphate pallets
were found.

- Maritime Denmark reported the evacuation of three Filipino crew from freighter Atalanta anchored at Aarhus Road, Denmark. On Jan 13 they've been evacuated by helicopter with symptoms of severe poisoning, after the works in a hold which presumably, was recently fumigated. Seamen were taken to hospital and said to be out of danger later. Vessel is detained for investigation. General cargo vessel Atalanta IMO 9131266, dwt 44593, built 1999, flag Liberia, manager NSC SCHIFFFAHRTSGESELLSCHAFT, Germany

Bulk carrier Poavosa Wisdom on fire in Taranaki Port, NZ

January 19, 2014

- 21 crew of the vessel was also evacuated. No-one was injured in the incident, but five people who were most exposed to the chemical were taken to Taranaki Base Hospital as a precaution.



Tom Edwards

- **Petition**
- Carleton Place ON
July 18, 2004
- Office of the Auditor General of Canada
Attention: Commissioner of the Environment and
Sustainable Development Petitions
240 Sparks Street,
Ottawa, Ontario
K1A 0G6

- 01 January 2005 «Joyous Society» Damietta Port(Egypt)
- 05 February 012 F.D.VITTORIO RAIOLA
- December 2007 “Belgeli-Beledeler”
- 15 July 2012 Container”Mersk Kinlass” Konstanza-Ilichevsk . Explosion onboard.2082 containers,1439 transit. 3 containers with phosphide aliminium and plavic acid
- End of 2010 General cargoLiepaja(Latvia,bound for Antwerp)-1 seafarer died
- 2006 Balboa
- 2000 Australia
- December 2010 Cargo from milwaukee to Montreal.16 from 21 crew members were hospitalised

B.Lodde,D Lucas,JM

Letort,D.Jegaden,JD Devitte

- February 2008,aboard od bulk carrier 56 old seafarer died from pulmonary edema,major acidosis and multiorgans failor
- Next day 41 year old presenting with abdominal pain,vomitting and dizziness
- 11 seafarers were evacuated for observation
- 3 presented clinical abnormalities

17 May 2008 “Roxolana 1”

Belize flag

Ukraine-Turkey

1 died, 7 hospitalised

Phosphine -200 times above normal level!!!



5 January 2006. SOS from "ODISK" Sierra Leone flag. Kerch-Iskanderia

2 seafarers died



3 December

2009 , "St.Stephan" .Liberi
an flag

1 seafarer died,4 hospitalized



PERIGO DE MORTE - VENENO
DANGER

ESSA UNIDADE ESTÁ EM FUMIGAÇÃO COM
THIS UNIT IS UNDER FUMIGATION WITH

- BROMETO DE METILA / METHIL BROMIDE (CH₃Br)
- FOSFINA / PHOSPHINE (PH₃)

NÃO SE APROXIME / DO NOT ENTER



EM CASO DE ACIDENTE, REMOVA PARA ÁREA AFASTADA DO LOCAL DE FUMIGAÇÃO E
CONTATE IMEDIATAMENTE UM MÉDICO

DOSAGEM / DOSAGE: 2g/cbn

DATA E HORA INÍCIO / STARTING: 17/01/11

DATA E HORA AERAÇÃO / FINISHING: 21/01/11

RESPONSÁVEL TÉCNICO / SURVEYOR: JOSÉ CARLOS B. JAMIM



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ESTE SELO SÓ PODERÁ SER REMOVIDO DEPOIS DA CARGA VENTILADA. PESSOAS NÃO PODEM SER EXPOSTAS AO GÁS
THIS SIGN ONLY BE REMOVED AFTER THE LOAD TO BE TOTALLY AERATED. PEOPLE MUST NOT BE EXPOSED TO GAS

Conclusion

- Risk is down estimated
- Label faking
- More data needed!!!
- Need for International Research Group!

THANK YOU!

