



# Material Safety Data Sheet MSDS

Issued by Per Alenfelt	Department R&D	Telephone +46 581 872	Date 2007-10-30	Page no 1 (6)
Product denomination Ikaros Man-Overboard (MOB) Light & Smoke Signal Mk III			Document no. MSDS MOB light/smoke-07	Edition no. 7

## 1 Identification of the substance and of the company/undertaking

Product name	Ikaros MOB Light & Smoke Mk III
Article No.	345105
Chemical name	Contains 1350 g of pyrotechnic composition and a lithium battery.
Document number	MSDS MOB light/smoke-07
Company/Manufacturer	Hansson PyroTech AB
Company address	P O Box 51, SE-711 22 Lindesberg, Sweden
Internet	www.hansson-pyrotech.com
Telephone number	+46 581 872 50
Telefax number	+46 581 872 51
Emergency telephone number	+46 19 32 43 25
Contact person	Ask for officer on duty at Nammo LIAB AB

## 2 Composition/Information on ingredients

Identification on product	Substances	CAS No.	%	Gram	Risk phrases
Ignition Composition:	Potassium Chlorate	3811-04-09	40	20,0	O,Xn,N; R 9-20/22-51/53 S (2)-13-16-27-61
	Lactose	10039-26-6	40	20,0	-
	Pumice	-	15	7.5	-
	Wax	-	5	2.5	-
Smoke Composition:	Potassium Chlorate	3811-04-09	35	455,0	O,Xn,N; R 9-20/22-51/53 S (2)-13-16-27-61
	Lactose	10039-26-6	15	195,0	-
	Anthraquinone Dyestuff	-	40	520,0	-
	Wax	-	10	130,0	-
Lithium Battery:	Lithium Metal	7439-93-2	-	0.48	F,C; R 14/15-34 S (1/2)-8-43-45
	Manganese Dioxide	1313-13-9	-	5.44	Xn; R 20/22 S (2)-25



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### 3 Hazard identification

Main health hazard	Pyrotechnic device; will emit smoke and become hot (200 °C)
Inhalation	Smoke can be irritating.
Skin contact	Contact with hot gasses or hot casing can cause burns.
Eye contact	Contact with smoke and/or ashes can be irritating.
Ingestion	If smoke composition from damaged signal is ingested, immediately take the patient to hospital.
Fire and explosive hazards	If exposed to flame the product will eventually ignite.
Environmental hazards	Large amounts of unburned smoke composition from damaged signals can be poisonous for aqueous organisms and cause long term effects in aquatic environments.

### 4 First-aid measures

After inhalation	Move patient to fresh air.
After skin contact	If burned, wash with plenty of water for at least 20 min.
After eye contact	Keep eyelid apart. Wash with a lot of water. If needed visit physician.
After ingestion	Contact a physician.

### 5 Fire-fighting measures

Extinguishing media	
- Suitable extinguishing media	Use any fire extinguishing media at early stages of fire. Once the product has ignited, the generation of smoke can not be extinguished.
- Extinguishing media no to be used	No restriction
Special exposure hazard arising	The products emit thick orange smoke that can be ignited in a confined space.
Special protective equipment for fire-fighters	Breathing aid.

### 6 Accidental release measures

Personal precautions	Normal industrial hygiene, use protective gloves.
Environmental precautions	Do not let waste reach drains, sewers, bodies of water or leak into ground.
Methods for cleaning up	Water, destruction shall be carried out by experts.

### 7 Handling and storage

Handling	Avoid dropping the signal on hard surfaces.
Storage	Temperature should not exceed +75° C



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## 8 Personal protection/Exposure controls

Engineering measures	No fire, sparks or welding close to the items. If cleaning up spillage, use tools which can not strike sparks.
Personal protective equipment	Normally none needed. But in case of spillage:
- Respiratory protection	Use ordinary dust mask
- Hand protection	Use protective gloves
- Eye protection	Use protective glasses
- Skin protection	Normal industrial hygiene
Further information	-

## 9 Physical and chemical properties

Appearance	Aluminium tube inserted in a plastic float body with two lamp bulbs.
Colour	Yellow tube and float body, clear lamp bulbs, orange label, black ignition mechanism.
Odour	N/A
Decomposition point (°C)	N/A
Melting point/range (°C)	N/A
Flash point (°C)	N/A
Autoignition temperature (°C)	> 250 °C
Explosion properties	Pyrotechnic smoke generator. Also contains lithium battery.
Boil point/range (°C)	N/A
Relative density (kg/m <sup>3</sup> )	N/A
Solubility in water	N/A
Solubility in other solvents	N/A
Partition coefficient n-octanol/water	N/A
Other data	N/A

## 10 Stability and reactivity

Conditions to avoid	High temperatures, above 100 °C
Materials to avoid	N/A
Hazardous decomposition products	N/A
Other information	If spillage from damaged signals comes in contact with sulphuric acid, a spontaneous ignition can occur!



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## 11 Toxicological information

LD <sub>50</sub> oral rat	N/A
Hazardous ingredients	N/A
Immediate health effects	N/A
Delayed health effects	N/A
Acute toxicity	N/A
Chronic toxicity (long-term)	N/A
Carcinogenicity	N/A
Mutagenicity	N/A
Reproductive toxicity	N/A
Inhalation	N/A
Skin	N/A
Eye	N/A
Ingestion	N/A

## 12 Ecological information

Microtox (mg/l, LC <sub>50</sub> )/(mg/l, EC <sub>50</sub> )	N/A
Mobility	N/A
Persistence degradability	N/A
Bioaccumulative potential	N/A
Aquatic toxicity and other data	Potassium chlorate is toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
Marine pollutant (IMDG Code)	N/A

## 13 Disposal considerations

Disposal of waste materials	Waste should be kept in separate container. NO SMOKING! Destruction must only be done by experts. Used product may be disposed as ordinary plastic/metallic waste containing lithium battery. DO NOT TRY TO DISMANTLE THE PRODUCT!
Contaminated packing	May burn rapidly.



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## 14 Transport information

Transport Classification	In Fibre Board Box	In Fibre Board Box
- UN No.	0197	0432
- Proper shipping name	Signals, smoke	Articles Pyrotechnic, <i>for Technical purposes</i>
- Transport Class	1.4G	1.4S
- Packing Instruction	P135	P135



### IMO-IMDG code

- EMS code F-B, S-X F-B, S-X

EX number (DOT/USA) EX2003030174 N/A  
Swedish Rescue Service Agency Cert. No. 13/297/97 711/3825/2004

**Comment** *During a transitional period, both transport classes will exist!*

## 15 Regulatory information

Health hazard product	Yes
Environmentally hazardous product	N/A
EC directive (67/548/EEC)	N/A
Symbols	E, Explosive
Risk phrases	R 2; Risk of explosion by shock, friction, fire or other sources of ignition R 20/22; Harmful if swallowed
Safety phrases	S 2, Keep out of reach of children S 15; Keep away from heat. S 16; Keep away from sources of ignition -No smoking. S 17; Keep away from combustible material S 35; This material and its container must be disposed of in a safe way. S 43; In case of fire, use water S 45; In case of accident or if you feel unwell, seek medical advise immediately. S 46; If swallowed, seek medical advice immediately and show this container or label



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## 16 Other information

The current Material Safety Data Sheet was defined by Hansson PyroTech AB on the basis of knowledge of the product at the date of issue.

Therefore, data provided in this form can not be considered as exhaustive.

It is the duty of the operator

- to develop under his own responsibility, the safety dispositions regarding the operation of the product taking into account the data from this form
- to pass to all users and operators the appropriate safety data and warning regarding the risks mentioned in the documentation relative to the utilisation of the product
- to be cautious of possible risks faced when the product is used for other utilisation than those for which it has been designed