



## Safety Data Sheet

Issued by <b>Atp</b>	Department <b>R&amp;D</b>	Date <b>15 May 2011</b>	Page no <b>1 (10)</b>
Product denomination <b>Ikaros Man-Overboard (MOB) Smoke Signal Mk III</b>	Document no. <b>SDS Ikaros MOB smoke Mk III</b>		Edition no. <b>13</b>
Supersedes: Version 12 dated 12 September 2011			

### SECTION 1 IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

#### 1.1. Product identifier

Product Name	Ikaros MOB Smoke Mk III
Article Nos.	345205
Chemical name	Contains 1350 g of pyrotechnic composition
Document number	SDS Ikaros MOB smoke Mk III - ed13

#### 1.2. Relevant identified uses of the substance or mixture and uses advised against

Use	Distress signal
Uses advised against	None specified

#### 1.3. Details of the supplier of the safety data sheet

Company/Manufacturer	Hansson PyroTech AB / Nammo LIAB AB
Company address	P O Box 154, SE-711 23 Lindesberg, Sweden
E-mail, internet	info@hansson-pyrotech.com www.hansson-pyrotech.com
Telephone number	+46 581 871 00
Telefax number	+46 581 872 51

#### 1.4. Emergency telephone number

Emergency telephone number	+46 70 314 59 76 (Available 24 hours)
Contact person	Ask for officer on duty at Nammo LIAB AB

### SECTION 2 HAZARDS IDENTIFICATION

#### 2.1. Classification of the substance or mixture

Main health hazard	Pyrotechnic device; will emit smoke and become hot (200°C). Hazards refer to contents of signal.
Inhalation	Smoke can be irritating.
Skin contact	Contact with hot gases 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.



# Safety Data Sheet

Issued by <b>Atp</b>	Department <b>R&amp;D</b>	Date <b>15 May 2011</b>	Page no <b>2 (10)</b>
Product denomination <b>Ikaros Man-Overboard (MOB) Smoke Signal Mk III</b>		Document no. <b>SDS Ikaros MOB smoke Mk III</b>	Edition no. <b>13</b>
Supersedes: Version 12 dated 12 September 2011			

<b>CLP Classification</b> Explosive Division 1.4 – H204 Acute Toxic Category 4 – H332 Skin Irritant Category 2 – H315 Skin Sensitiser Category 1 – H317 Eye Irritant Category 2 – H319 STOT SE Category 3 – H335 Aqueous Chronic Category 2 – H411  For full wording of Hazard statements see Section 16	<b>DPD Classification</b> Explosive – R2 Harmful –R20/22-R36/37/38-R43 Hazardous for the Environment – R51/53  For full wording of Risk phrases see Section 16
---	---

## 2.2. Label elements

### WARNING

Contains: Potassium chlorate and Solvent Orange 86

- H204 – Fire or projection hazard.
- H332 – Harmful if inhaled.
- H315 – Causes skin irritation
- H317 – May cause an allergic skin reaction
- H319 – Causes serious eye irritation.
- H335 – May cause respiratory irritation
- H411 – Toxic to aquatic life with long lasting effects



- P102 - Keep out of reach of children.
- P210 - Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
- P280 - Wear protective gloves / protective clothing / eye protection / face protection.
- P501 - Dispose of contents / container to authorised waste disposal facility.
- P370+P378 - In case of fire: Use water for extinction.
- P309+P311 - If exposed or if you feel unwell: Call a POISON CENTER or doctor/physician.

## 2.3. Other hazards

Contact with hot gases, hot casing or burning flare can cause severe burns.

## SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

### 3.2. Mixtures

Hazardous component(s)

Under CLP EC1272/2008

Identification on product	Substances	CAS No.	REACH Registration No.	%	Gram	CLP Hazard Category & H Statements
Ignition Composition:	Potassium Chlorate	3811-04-09	Not yet available	40	20.0	Oxidising Solid Cat 1 – H271 Acute Toxic Cat 4 – H302, H332 Aquatic Chronic Cat 2 – H411



## Safety Data Sheet

Issued by <b>Atp</b>	Department <b>R&amp;D</b>	Date <b>15 May 2011</b>	Page no <b>3 (10)</b>
Product denomination <b>Ikaros Man-Overboard (MOB) Smoke Signal Mk III</b>		Document no. <b>SDS Ikaros MOB smoke Mk III</b>	Edition no. <b>13</b>
Supersedes: Version 12 dated 12 September 2011			

Smoke Composition:	Potassium Chlorate	3811-04-09	Not yet available	35	455.0	Oxidising Solid Cat 1 – H271 Acute Toxic Cat 4 – H302, H332 Aquatic Chronic Cat 2 – H411
	Solvent Orange 86	81-64-1	Not yet available	40	520.0	Skin Sensitiser Cat 1 – H317 Eye Irritant Cat 2 – H319 Skin Irritant Cat 2 – H315 STOT SE Cat 3 - H335

Under DPD EC1999/45

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
Smoke Composition:	Potassium Chlorate	3811-04-09	35	455.0	O,Xn,N: R 9-20/22-51/53
	Solvent Orange 86	81-64-1	40	520.0	Xi: R36/37/38-43

For full wording of H-statements and R-phrases see Section 16.

### SECTION 4 FIRST-AID MEASURES

#### 4.1. Description of 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 eyelids apart. Wash with a lot of water. If needed visit physician.
After ingestion	Contact a physician.

#### 4.2. Most important symptoms and effects, both acute and delayed

Contact with hot tube can cause burns. Harmful if inhaled. May cause an allergic skin reaction.

#### 4.3. Indication of any immediate medical attention and special treatment needed

None other than above.



## Safety Data Sheet

Issued by <b>Atp</b>	Department <b>R&amp;D</b>	Date <b>15 May 2011</b>	Page no <b>4 (10)</b>
Product denomination <b>Ikaros Man-Overboard (MOB) Smoke Signal Mk III</b>		Document no. <b>SDS Ikaros MOB smoke Mk III</b>	Edition no. <b>13</b>
Supersedes: Version 12 dated 12 September 2011			

### SECTION 5 FIRE-FIGHTING MEASURES

#### 5.1. Extinguishing media

- Suitable extinguishing media Use any fire extinguishing media at early stages of fire. Once the product has ignited it cannot be extinguished.
- Not to be used No restriction.

#### 5.2. Special hazards arising from the substance or mixture

The products emit thick orange smoke that can be ignited in a confined space.

#### 5.3. Advice for fire-fighters

Breathing aid.

### SECTION 6 ACCIDENTAL RELEASE MEASURES

#### 6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Normal industrial hygiene, use protective gloves.

#### 6.2. Environmental precautions

Do not let waste reach drains, sewers and bodies of water or leak into ground.

#### 6.3. Methods and material for containment and cleaning up

Collect using non-sparking tools, reuse if undamaged. Otherwise, keep for disposal by experts.

#### 6.4. Reference to other sections

See Sections 8 & 13.

### SECTION 7 HANDLING AND STORAGE

#### 7.1. Precautions for safe handling

Avoid dropping the signal on hard surfaces.

#### 7.2. Conditions for safe storage, including any incompatibilities

Storage Temperature should not exceed +75° C

#### 7.3. Specific end use(s)

Distress signal

### SECTION 8 PERSONAL PROTECTION/EXPOSURE CONTROLS

#### 8.1. Control parameters

None set



## Safety Data Sheet

Issued by <b>Atp</b>	Department <b>R&amp;D</b>	Date <b>15 May 2011</b>	Page no <b>5 (10)</b>
Product denomination <b>Ikaros Man-Overboard (MOB) Smoke Signal Mk III</b>		Document no. <b>SDS Ikaros MOB smoke Mk III</b>	Edition no. <b>13</b>
Supersedes: Version 12 dated 12 September 2011			

### 8.2. Exposure controls

Recommended engineering controls	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	In case of dust use particle filter mask such as EN143 Type P or EN149 Type FFP-S.
- Hand protection	Leather or similar protective gloves.
- Eye protection	Shatter-proof glasses or goggles.
- Skin protection	Normal industrial hygiene
Specific hygiene measures	No smoking.
Further information	Always check applicability with your supplier of protective equipment.

## SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

### 9.1. Information on basic physical and chemical properties

Appearance	Yellow aluminium tube inserted in a yellow plastic float body with orange label, black ignition mechanism
Odour	None
Odour threshold value	Not applicable
pH (concentrated product)	Not applicable
Melting point (°C)	Not determined
Boiling point/range (°C)	Not applicable
Flash point (°C)	Not applicable
Evaporation rate	Not applicable
Flammability	Contents are flammable
Explosive properties	Pyrotechnic smoke generator.
Vapour pressure (mbar at 25°C)	Not applicable
Vapour density	Not applicable
Density at 20°C (g/cm <sup>3</sup> )	Not determined
Solubility in water (% by weight)	Insoluble
Solubility in solvents	Not determined
Partition coefficient (log Pow)	Not applicable
Autoignition temperature (°C)	> 250
Decomposition temperature (°C)	Not determined



## Safety Data Sheet

Issued by <b>Atp</b>	Department <b>R&amp;D</b>	Date <b>15 May 2011</b>	Page no <b>6 (10)</b>
Product denomination <b>Ikaros Man-Overboard (MOB) Smoke Signal Mk III</b>		Document no. <b>SDS Ikaros MOB smoke Mk III</b>	Edition no. <b>13</b>
Supersedes: Version 12 dated 12 September 2011			

Viscosity

Not applicable

Oxidising properties

Contents have oxidising properties

### 9.2. Other information

*Note: These are typical values and do not constitute a specification*

## SECTION 10 STABILITY AND REACTIVITY

### 10.1. Reactivity

Stable product under recommended storage and handling conditions.

### 10.2. Chemical stability

Stable product under recommended storage and handling conditions.

### 10.3. Possibility of hazardous reactions

Stable product under recommended storage and handling conditions. If spillage from damaged signals comes in contact with sulphuric acid, a spontaneous ignition can occur!

### 10.4. Conditions to avoid

High temperatures, above 100 °C

### 10.5. Incompatible materials

Sulphuric acid

### 10.6. Hazardous decomposition products

Pyrotechnic device; will emit smoke and become hot (200°C).

## SECTION 11 TOXICOLOGICAL INFORMATION

### 11.1. Information on toxicological effects

No data available on mixture. Data based on individual components shown below.

Hazardous ingredients

Potassium chlorate and Solvent Orange 86.

(a) acute toxicity

Potassium chlorate: LD<sub>50</sub> oral rat 1870 mg/kg - Harmful by ingestion

Calculated product ATE = 17474 mg/kg – Not harmful by ingestion

Potassium chlorate: ATE inhalation 1.5 mg/l

Calculated product ATE = 3.9 mg/l – Harmful by inhalation

(b) skin corrosion/irritation

Classified as Skin Irritant Category 2 under CLP due to presence of Solvent Orange 86



## Safety Data Sheet

Issued by <b>Atp</b>	Department <b>R&amp;D</b>	Date <b>15 May 2011</b>	Page no <b>7 (10)</b>
Product denomination <b>Ikaros Man-Overboard (MOB) Smoke Signal Mk III</b>		Document no. <b>SDS Ikaros MOB smoke Mk III</b>	Edition no. <b>13</b>
Supersedes: Version 12 dated 12 September 2011			

(c) serious eye damage/irritation	Classified as Eye Irritant Category 2 under CLP due to presence of Solvent Orange 86
(d) respiratory or skin sensitisation	Classified as a Skin Sensitiser Category 1 under CLP due to presence of Solvent Orange 86
(e) germ cell mutagenicity	No deleterious effects known.
(f) carcinogenicity	No deleterious effects known.
(g) reproductive toxicity	No deleterious effects known.
(h) STOT-single exposure	Classified as a Respiratory Irritant Category 3 under CLP due to presence of Solvent Orange 86
(i) STOT-repeated exposure	No deleterious effects known.
(j) aspiration hazard	No deleterious effects known.
Likely routes of exposure	Contact with skin
Symptoms related to the physical, chemical and toxicological characteristics	Powders are irritating to the skin, eyes and respiratory tract. May cause sensitisation by skin contact. May cause gastric irritation, nausea and vomiting.
Delayed and immediate effects as well as chronic effects from short and long-term exposure	No deleterious effects known.
Other information	None

## SECTION 12 ECOLOGICAL INFORMATION

### 12.1. Toxicity

No data available on mixture. Data based on individual components shown below.

Potassium chlorate EC<sub>50</sub> Daphnia magna 24h: 1.093mg/l Toxic.

### 12.2. Persistence and degradability

Not applicable – contains inorganic materials and is in form of solid article.

### 12.3. Bioaccumulative potential

Mobility No test data on product.

### 12.4. Mobility in soil

None – product in form of solid article.

### 12.5. Results of PBT and vPvB assessment

Does not fulfil the criteria for classification as PBT or vPvB.

### 12.6. Other adverse effects

Not a Marine pollutant (IMDG Code).







## Safety Data Sheet

Issued by <b>Atp</b>	Department <b>R&amp;D</b>	Date <b>15 May 2011</b>	Page no <b>9 (10)</b>
Product denomination <b>Ikaros Man-Overboard (MOB) Smoke Signal Mk III</b>		Document no. <b>SDS Ikaros MOB smoke Mk III</b>	Edition no. <b>13</b>
Supersedes: Version 12 dated 12 September 2011			

EX number EX2005040231 N/A  
(DOT/USA)  
MSB (Swedish Civil 711/3825/2004 2009-4272  
Contingencies  
Agency) Cert. No.

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

### SECTION 15 REGULATORY INFORMATION

#### 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

None specified

#### 15.2. Chemical Safety Assessment

A Chemical Safety Assessment has not been carried out on this mixture.

### SECTION 16 OTHER INFORMATION

Inventories - All ingredients listed in EINECS.

Sources of data used in this SDS

In-house data files  
Literature such as Sax's Dangerous Properties of Industrial Materials, the RSC Dictionary of Substances and their Effects, RTECS  
CLP Annex VI Tables 3.1 & 3.2  
Suppliers' Safety Data Sheets  
EU ESIS web site

Version number 13  
Date prepared 12.09.11  
Supersedes Version 12 dated 12.09.11  
Nature of revision New UN No. introduced for transport class 1.4S

Mixture classified under CLP (EC1272/2008) by calculation based on ingredient information.

R-phrases used in document

R2 Risk of explosion by shock, friction, fire or other sources of ignition  
R9 Explosive when mixed with combustible material  
R14/15 Reacts violently with water, liberating extremely flammable gases



## Safety Data Sheet

Issued by <b>Atp</b>	Department <b>R&amp;D</b>	Date <b>15 May 2011</b>	Page no <b>10 (10)</b>
Product denomination <b>Ikaros Man-Overboard (MOB) Smoke Signal Mk III</b>		Document no. <b>SDS Ikaros MOB smoke Mk III</b>	Edition no. <b>13</b>
Supersedes: Version 12 dated 12 September 2011			

R20/22	Harmful by inhalation and if swallowed
R34	Causes burns
R36/37/38	Irritating to eyes, respiratory system and skin
R43	May cause sensitisation by skin contact
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

### H-statements used in document

H204	Fire or projection hazard
H260	In contact with water releases flammable gases which may ignite spontaneously
H271	May cause fire or explosion; strong oxidiser
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H317	May cause an allergic skin reaction
H319	Causes serious eye irritation
H332	Harmful if inhaled
H335	May cause respiratory irritation
H411	Toxic to aquatic life with long lasting effects

Based on EU Regulation 1907/2006 as amended by 453/2010

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