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

1.1. Product identifier

Product Name	Ikaros Buoyant Smoke Orange
Article Nos.	342130, 342170
Chemical name	10 g of ignition composition and 260 g of orange smoke composition
Document number	SDS Ikaros Buoyant Smoke Orange - ed7

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
Company address	P O Box 154, SE-711 23 Lindesberg, Sweden
E-mail, internet	info@hansson-pyrotech.com www.hansson-pyrotech.com
Telephone number	+46 581 872 53
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	Hazards refer to contents of smoke canister
Inhalation	Irritating to respiratory system
Skin contact	Irritating to skin. May cause sensitisation by skin contact. Contact with exhaust gases can cause burns
Eye contact	Irritating to eyes
Ingestion	May give rise to upset stomach, sickness, vomiting
Fire and explosive hazards	Risk of explosion by shock, friction, fire or other sources of ignition.
Environmental hazards	Toxic to aquatic organisms. May cause long-term adverse effects in the aquatic environment

CLP Classification	DPD Classification
Explosive Division 1.4 – H204 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	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.
P301+P310 – IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician.

2.3. Other hazards

Contact with exhaust gases can cause burns.

SECTION 3 COMPOSITION/INFORMATION ON INGREDIENTS

3.2. Mixtures

Hazardous component(s)

Under CLP EC1272/2008

Substances	CAS No.	REACH Registration No.	%	Gram	CLP Hazard Category & H Statements
Solvent Orange 86	81-64-1	Not yet available	33.56	90.6	Skin Sensitiser Cat 1 – H317 Eye Irritant Cat 2 – H319 Skin Irritant Cat 2 – H315 STOT SE Cat 3 - H335

Potassium Chlorate	3811-04-9	Not yet available	27.48	74.2	Oxidising Solid Cat 1 – H271 Acute Toxic Cat 4 – H302, H332 Aquatic Chronic Cat 2 – H411

Under DPD EC1999/45

Substances	CAS No.	EC No.	%	Gram	Symbol & Risk phrases
Solvent Orange 86	81-64-1	201-368-7	90.6	33.56	Xi: R36/37/38-43
Potassium Chlorate	3811-04-9	223-289-7	74.2	27.48	O, Xn, N: R9-20/22-51/53

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. If needed visit physician.
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 exhaust gases can cause burns. Harmful if inhaled.

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

None other than above.

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

Product is explosive, evolving large quantities of gases and orange coloured smoke if involved in fire.

5.3. Advice for fire-fighters

Normal equipment.

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

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 metal can with orange label and red plastic lid
Odour	None
Odour threshold value	Not applicable
pH (concentrated product)	Not applicable
Melting point (ºC)	Not determined
Boiling point/range (ºC)	Not applicable
Flash point (ºC)	Not applicable
Evaporation rate	Not applicable
Flammability	Contents are flammable
Explosive properties	Intrinsically explosive. Emits orange smoke.
Vapour pressure (mbar at 25°C)	Not applicable
Vapour density	Not applicable
Density at 20ºC (g/cm^3)	Not determined
Solubility in water (% by weight)	Insoluble
Solubility in solvents	Not determined
Partition coefficient (log Pow)	Not applicable
Autoignition temperature (ºC)	> 190
Decomposition temperature (ºC)	Not determined
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.

10.4. Conditions to avoid

High temperatures, above 75 ^{o}C

10.5. Incompatible materials

Not applicable.

10.6. Hazardous decomposition products

Product is explosive, evolving large quantities of gases and orange coloured smoke if involved in fire.

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_{50} oral rat 1870 mg/kg Harmful by ingestion Calculated product ATE ingestion = 6805 mg/kg Not classified as hazardous by ingestion Calculated product ATE inhalation = 5.46 mg/l dust Not classified as hazardous by inhalation
(b) skin corrosion/irritation	Solvent Orange 86: Skin irritant category 2 under CLP
(c) serious eye damage/irritation	Solvent Orange 86: Eye irritant category 2 under CLP
(d) respiratory or skin sensitisation	Solvent Orange 86: Skin sensitiser Category 1 under CLP
(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	Solvent Orange 86: STOT SE Category 3 under CLP
(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 can be irritating to the skin, eyes and respiratory tract. May cause sensitisation by skin contact May cause gastric irritation, nausea and vomiting. Ingestion of large amounts may lead to chemical burns in stomach and intestines along with possible damage to blood cells, liver and kidney.
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	LC50 - Oncorhynchus mykiss (rainbow trout) 96h - 1.750 mg/l Toxic to fish. EC_{50} Daphnia magna 24h: 1093 mg/l Not harmful.

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).

SECTION 13 DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

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. DO NOT TRY TO DISMANTLE THE PRODUCT!
Contaminated packing	May burn rapidly.

SECTION 14 TRANSPORT INFORMATION

14.1. UN numbers	See table below
14.2. UN proper shipping name	See table below
14.3. Transport hazard class(es)	See table below
14.4. Packing group	Not applicable
14.5. Environmental hazards	None
14.6. Special precautions for user	See P Statements in Section 2.2
14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable

Transport Classification	**In Fibre Board Box**	**In Steel Cage**
Article Number	342130	342170
- UN No.	0197	0349
- Proper shipping name	Signals, smoke	Articles, Explosive, NOS
- Transport Class	1.4G	1.4S
- Packing Instruction	P135	P101
Label	1.4	1.4
IMO-IMDG code		
- EMS code	F-B, S-X	F-B, S-X
EX number (DOT/USA)	EX-9904090	N/A
Swedish Rescue Service Agency Cert. No.	13/458/99	1312-5962-2005
Comment	Not classified as Marine Pollutants	

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 & 3.2Sources of key data used

Suppliers' Safety Data Sheets

RTECS, EU ESIS web site

Version number	7
Date prepared	12.09.11
Supersedes Version	6 dated 03.03.11
Nature of revision	Correction of hazard classification and labelling elements in Section 2. Correction of Grammage and procentage figures in Section 3. Correction of inhalation toxicity ATE in Section 11.

Version number 7, 2011-07-25, Change of Phrase P331 to P311 in section 2.

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
R8	Contact with combustible material may cause fire
R9	Explosive when mixed with combustible material
R20/22	Harmful by inhalation and if swallowed
R36/37/38	Irritating to eyes, respiratory system and skin

R43	May cause sensitisation by skin contact
R50	Very toxic to aquatic organisms
R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment

H-statements used in document

H204	Fire or projection hazard
H271	May cause fire or explosion; strong oxidiser
H272	May intensify fire; oxidiser
H302	Harmful if swallowed
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