



Safety Data Sheet

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|-------------------------------------------------|-------------------|---------------------------------------------|-------------------|
| Issued by Atp | Department R&D | Date 24 October 2014 | Page no 1 (10) |
| Product denomination Ikaros Handsmoke Orange | | Document no. SDS Ikaros Handsmoke Orange | Edition no. 6 |

Supersedes: Version 5 dated 28 May 2012

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

1.1. Product identifier

| | |
|-----------------|------------------------------------------------------------------|
| Product Name | Ikaros Handsmoke Orange |
| Article Nos. | 341700 |
| Chemical name | 4 g of ignition composition and 72 g of orange smoke composition |
| Document number | SDS Ikaros Handsmoke Orange – ed6 |

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 | +46 581 872 53 |
| Telefax number | +46 581 872 51 |

1.4. Emergency telephone number

| | |
|----------------------------|------------------------------------------|
| Emergency telephone number | +46 581 87 111 (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 flare |
| 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 |



Safety Data Sheet

| | | | |
|--------------------------------------------------------|------------------------------|----------------------------------------------------|--------------------------|
| Issued by Atp | Department R&D | Date 24 October 2014 | Page no 2 (10) |
| Product denomination Ikaros Handsmoke Orange | | Document no. SDS Ikaros Handsmoke Orange | Edition no. 6 |

Supersedes: Version 5 dated 28 May 2012

| | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CLP 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 | DPD Classification 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.

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 | 01-2119494917-18 | 39.11 | 29.8 | 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 | 01-2119971261-41 | 28.35 | 21.6 | Oxidising Solid Cat 1 – H271 Acute Toxic Cat 4 – H302, H332 |



Safety Data Sheet

| | | | |
|--------------------------------------------------------|------------------------------|----------------------------------------------------|--------------------------|
| Issued by Atp | Department R&D | Date 24 October 2014 | Page no 3 (10) |
| Product denomination Ikaros Handsmoke Orange | | Document no. SDS Ikaros Handsmoke Orange | Edition no. 6 |

Supersedes: Version 5 dated 28 May 2012

Potassium nitrate 7757-79-1 01-2119488224-35 3.94 3.0 Aquatic Chronic Cat 2 – H411
Oxidising Solid Cat 3 – H272
Under DPD EC1999/45

| Substances | CAS No. | EC No. | % | Gram | Symbol & Risk phrases |
|--------------------|-----------|-----------|-------|------|--------------------------|
| Solvent Orange 86 | 81-64-1 | 201-368-7 | 39.11 | 29.8 | Xi: R36/37/38-43 |
| Potassium Chlorate | 3811-04-9 | 223-289-7 | 28.35 | 21.6 | O, Xn, N: R9-20/22-51/53 |
| Potassium nitrate | 7757-79-1 | 231-818-8 | 3.94 | 3.0 | O, N: R8-50 |

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 emitting large quantities of heat radiation if involved in fire.

5.3. Advice for fire-fighters

Normal equipment.

SECTION 6 ACCIDENTAL RELEASE MEASURES



Safety Data Sheet

| | | | |
|-------------------------------------------------|-------------------|---------------------------------------------|-------------------|
| Issued by Atp | Department R&D | Date 24 October 2014 | Page no 4 (10) |
| Product denomination Ikaros Handsmoke Orange | | Document no. SDS Ikaros Handsmoke Orange | Edition no. 6 |

Supersedes: Version 5 dated 28 May 2012

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.



Safety Data Sheet

| | | | |
|--------------------------------------------------------|----------------------------------------------------|--------------------------------|--------------------------|
| Issued by Atp | Department R&D | Date 24 October 2014 | Page no 5 (10) |
| Product denomination Ikaros Handsmoke Orange | Document no. SDS Ikaros Handsmoke Orange | | Edition no. 6 |

Supersedes: Version 5 dated 28 May 2012

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

| | |
|--------------------------------------|-----------------------------------------------------------------------------------------|
| Appearance | Black metal tube with orange plastic handle with black plastic top lid and orange label |
| 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 | Intrinsically explosive. Emits orange smoke. |
| Vapour pressure (mbar at 25°C) | Not applicable |
| Vapour density | Not applicable |
| Density at 20°C (g/cm ³) | Not determined |
| Solubility in water (% by weight) | Insoluble |
| Solubility in solvents | Not determined |
| Partition coefficient (log Pow) | Not applicable |
| Autoignition temperature (°C) | > 100 |
| Decomposition temperature (°C) | 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



Safety Data Sheet

| | | | |
|--------------------------------------------------------|------------------------------|----------------------------------------------------|--------------------------|
| Issued by Atp | Department R&D | Date 24 October 2014 | Page no 6 (10) |
| Product denomination Ikaros Handsmoke Orange | | Document no. SDS Ikaros Handsmoke Orange | Edition no. 6 |

Supersedes: Version 5 dated 28 May 2012

Stable product under recommended storage and handling conditions.

10.4. Conditions to avoid

High temperatures, above 75 °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: LD₅₀ oral rat 1870 mg/kg Harmful by ingestion

Calculated product ATE ingestion = 6596 mg/kg Not classified as hazardous by ingestion

Calculated product ATE inhalation = 5.3 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 mildly 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.



Safety Data Sheet

| | | | |
|--------------------------------------------------------|------------------------------|----------------------------------------------------|--------------------------|
| Issued by Atp | Department R&D | Date 24 October 2014 | Page no 7 (10) |
| Product denomination Ikaros Handsmoke Orange | | Document no. SDS Ikaros Handsmoke Orange | Edition no. 6 |

Supersedes: Version 5 dated 28 May 2012

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.
EC₅₀ 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.



Safety Data Sheet

| | | | |
|--------------------------------------------------------|------------------------------|----------------------------------------------------|--------------------------|
| Issued by Atp | Department R&D | Date 24 October 2014 | Page no 8 (10) |
| Product denomination Ikaros Handsmoke Orange | | Document no. SDS Ikaros Handsmoke Orange | Edition no. 6 |

Supersedes: Version 5 dated 28 May 2012

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 Fibre Board Box |
|-----------------------------------------|-------------------------------------|---------------------------|
| Article Number | 341700 | 341700 |
| - UN No. | 0191 | 0373 |
| - Proper shipping name | Signal devices, hand | Signal devices, hand |
| - Transport Class | 1.4G | 1.4S |
| - Packing Instruction | P135 | P135 |
| Label | 1.4 | 1.4 |
| IMO-IMDG code | | |
| - EMS code | F-B, S-X | F-B, S-X |
| EX number (DOT/USA) | EX2003030174 | EX2006030026 |
| Swedish Rescue Service Agency Cert. No. | 13/438/96 | 1312-3325-2005 |
| 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.



Safety Data Sheet

| | | | |
|--------------------------------------------------------|------------------------------|----------------------------------------------------|--------------------------|
| Issued by Atp | Department R&D | Date 24 October 2014 | Page no 9 (10) |
| Product denomination Ikaros Handsmoke Orange | | Document no. SDS Ikaros Handsmoke Orange | Edition no. 6 |

Supersedes: Version 5 dated 28 May 2012

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 Sources of key data used

Suppliers' Safety Data Sheets

RTECS, EU ESIS web site

Version number 6

Date prepared 24.10.14

Supersedes Version 5 dated 28.05.12

Nature of revision New emergency telephone number. REACH registration numbers introduced for solvent orange 86, potassium chlorate and potassium nitrate, auto ignition temperature changed from >190 °C to >100 °C.

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 |



Safety Data Sheet

| | | | |
|--------------------------------------------------------|------------------------------|----------------------------------------------------|---------------------------|
| Issued by Atp | Department R&D | Date 24 October 2014 | Page no 10 (10) |
| Product denomination Ikaros Handsmoke Orange | | Document no. SDS Ikaros Handsmoke Orange | Edition no. 6 |

Supersedes: Version 5 dated 28 May 2012

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