SAFETY DATA SHEET

Ikaros Linethrower Rocket

The safety data sheet is in accordance with Commission Regulation (EU) 2015/830 of 28 May 2015 amending Regulation (EC) No 1907/2006 of the European Parliament and of the Council on the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH)

SECTION 1: Identification of the substance / mixture and of the company / undertaking

Date issued	22.11.2016
Revision date	24.11.2017

1.1. Product identifier

Product name	Ikaros Linethrower Rocket
Article no.	346200 (order number 346200, 346280)
Product definition	2 g ignition composition, 220 g composite propellant

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

Use of the substance / preparation	Linethrowing rocket

1.3. Details of the supplier of the safety data sheet

Company name	Nammo Sweden AB
Postal address	PO Box 54
Postcode	SE-711 22
City	Lindesberg
Country	Sweden
Telephone number	0581-871 00
Fax	0581-872 00
Email	info.ikaros@nammo.com
Website	http://www.hansson-pyrotech.se/
Enterprise No.	556249-6835

1.4. Emergency telephone number

Emergency telephone	Telephone number: +46 581 87 111 (Available 24 hours) Description: Emergency call
Identification, comments	Ask for officer on duty at Nammo LIAB AB.

SECTION 2: Hazards identification

2.1. Classification of substance or mixture

Classification according to Regulation (EC) No 1272/2008 [CLP / GHS]	Expl. 1.3; H203 Acute tox. 4; H302
Substance / mixture hazardous properties	Main health hazard: Pyrotechnic product. Inhalation: May be mildly irritating to the respiratory system. Contact with skin: May be mildly irritating to the skin. Contact with burning product can cause severe burns. Contact with eyes: May be mildly irritating to the eyes. Ingestion: Harmful if swallowed. Fire and explosion hazard: Risk of explosion if the product is exposed to electric shock, friction, fire or other sources of ignition. Environmental hazard: Not classified as dangerous to the environment.

2.2. Label elements

Hazard pictograms (CLP)

Composition on the label	Potassium perchlorate = 72,34 %
Signal word	Danger
Hazard statements	H203 Explosive; fire, blast or projection hazard.
Precautionary statements	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P230 Keep wetted with P234 Keep only in original container. P240 Ground / bond container and receiving equipment. P250 Do not subject to grinding / shock / / friction. P280 Wear protective gloves / protective clothing / eye protection / face protection. P370 + P372 + P380 + P373 In case of fire: Explosion risk. Evacuate area. DO NOT fight fire when fire reaches explosives.
Special supplemental label information mixtures	Contains: Potassium perchlorate .

2.3. Other hazards

Description of hazard	Contact with burning product can cause severe burns.

SECTION 3: Composition / information on ingredients

3.2. Mixtures

Substance	Identification	Classification	Contents
Potassium perchlorate	CAS No.: 7778-74-7 EC No.: 231-912-9 Index No.: 017-008-00-5 REACH Reg. No.: 01-2120021000-89	Ox. Sol. 1; H271 Acute tox. 4; H302	= 72,34 %
Potassium nitrate	CAS No.: 7757-79-1 EC No.: 231-818-8 REACH Reg. No.:	Ox. Sol. 3; H272 Aquatic Acute 1; H400	= 0,68 %

	01-2119488224-35		
Sulphur	CAS No.: 7704-34-9 EC No.: 231-722-6 Index No.: 016-094-00-1 REACH Reg. No.: 01-2119487295-27	Skin Irrit. 2; H315	= 0,14 %

SECTION 4: First aid measures

4.1. Description of first aid measures

General	Contaminated work clothing should be washed before using again. Special treatment is urgent (see label on this label).
Inhalation	Move the person to fresh air and keep at rest in a position comfortable for breathing. Consult a doctor if symptoms persist.
Skin contact	If burned, rinse with plenty of water for at least 20 minutes. In case of any other contact with skin, wash with soap and water for several minutes.
Eye contact	Hold eyelids open and rinse with a lot of water or eye wash liquid for several minutes. Remove contact lenses. Consult a doctor if symptoms persist.
Ingestion	Get medical advice/attention.

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

Acute symptoms and effects	Contact with burning product can cause severe burns. May cause nausea and vomiting. Harmful if swallowed. May be mildly irritating to the eyes. May be mildly irritating to the skin and respiratory system.

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

Medical treatment	None other than the one listed above.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	Use foam, dry chemical, CO2 or mist early in the fire. Once the product is lit up, it is very difficult to extinguish.
Improper extinguishing media	No restrictions.

5.2. Special hazards arising from the substance or mixture

Fire and explosion hazards	The product is an explosion hazard, as it generates large quantities of gas and heat, once lit.

5.3. Advice for firefighters

Personal protective equipment	Wear full protective clothing for chemical fires, including breathing apparatus. If possible, remove undamaged containers from the danger area. Remove all ignition sources.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal protection measures	Ensure good ventilation. Use appropriate protective equipment, see section 8. Avoid skin and eye contact. Remove all ignition sources.

6.2. Environmental precautions

Environmental precautionary measures	Prevent discharge into sewers or the local environment/streams. Contact emergency services upon greater emissions.

6.3. Methods and material for containment and cleaning up

Cleaning method	Collect with tools that do not give rise to ignition. The waste is placed in closed containers and disposed of as hazardous waste in accordance with section 13.

6.4. Reference to other sections

Other instructions	See sections 8 and 13 for information about protection and waste management.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Handling	Avoid sparks, shock and friction. Use personal protective equipment, see section 8. Avoid skin and eye contact. Protect the product from sources of ignition.

7.2. Conditions for safe storage, including any incompatibilities

Storage	Store cool and dry in a well-ventilated place. Keep away from sources of ignition - no smoking. Keep out of reach of children.

7.3. Specific end use(s)

Specific use(s)	Linethrowing rocket.

SECTION 8: Exposure controls / personal protection

8.1. Control parameters

Other Information about threshold limit values	No exposure limits.
Control parameters comments	PNEC/DNEL are not available.

8.2. Exposure controls

Precautionary measures to prevent exposure

Appropriate engineering controls	Keep away from fire, sparks and other ignition sources. When cleaning, use equipment that does not cause sparks.

Eye / face protection

Eye protection	Shatterproof goggles or visors.

Hand protection

Hand protection	Leather gloves or the like.

Skin protection

Skin protection (except hands)	Normal industrial hygiene.

Respiratory protection

Respiratory protection	Upon dust formation, use a particle filter EN143 Type P or EN149 type FFP-S.
Recommended type of equipment	Particle filter EN143 Type P or EN149 type FFP-S.

Hygiene / environmental

Personal protection equipment, comments	Contact your protective equipment supplier for more information.
Specific hygiene measures	No smoking.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	Metal coloured tube with metal coloured nozzle and transparent label.
Colour	See under "Physical state".
Odour	None.
pH	Status: In delivery state Comments: No information available. Status: In aqueous solution Comments: No information available.
Melting point / melting range	Comments: No information available.
Boiling point / boiling range	Comments: No information available.
Flash point	Comments: No information available.
Evaporation rate	Comments: No information available.
Flammability (solid, gas)	The contents are flammable.
Explosion limit	Comments: No information available.
Vapour pressure	Comments: No information available.
Vapour density	Comments: No information available.
Specific gravity	Comments: No information available.
Solubility in water	Insoluble.
Spontaneous combustability	Value: > 250 °C Method: Ignition temperature
Viscosity	Comments: No information available.
Explosive properties	The product is explosive.

Oxidising properties	Content is oxidizing.

9.2. Other information

Other physical and chemical properties

Comments	These are typical values and do not constitute an exact product specification.

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	Stable product under recommended storage and handling conditions.

10.2. Chemical stability

Stability	Stable product under recommended storage and handling conditions.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions	Stable product under recommended storage and handling conditions.

10.4. Conditions to avoid

Conditions to avoid	Avoids temperatures above 75°C.

10.5. Incompatible materials

Materials to avoid	Not applicable.

10.6. Hazardous decomposition products

Hazardous decomposition products	The product is explosive, generating large quantities of gas and heat once ignited. Also emits large quantities of orange smoke.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Substance	Potassium nitrate
Acute toxicity	**Type of toxicity:** Acute **Effect tested:** LD50 **Route of exposure:** Oral **Value:** = 3750 mg/kg **Animal test species:** Rat
Substance	Sulphur
Acute toxicity	**Type of toxicity:** Acute **Effect tested:** LD50 **Route of exposure:** Oral **Value:** > 3000 mg/kg **Animal test species:** Rat **Comments:** Not hazardous if swallowed.

	Type of toxicity: Acute **Effect tested:** LD50 **Route of exposure:** Dermal **Value:** > 2000 mg/kg **Animal test species:** Rabbit **Comments:** Not hazardous in case of skin contact.
Other toxicological data	No data available for the product itself. The data below is based on individual ingredients of the product.

Other information regarding health hazards

General	Hazardous ingredients: Potassium perchlorate, Potassium nitrate and Sulphur . Calculated ATE: 691 mg/kg (classified as harmful)
Inhalation	May be mildly irritating to the respiratory system.
Skin contact	May be mildly irritating to the skin.
Eye contact	May be mildly irritating to the eyes.
Ingestion	Harmful if swallowed. May cause irritation of the gastrointestinal tract with nausea and vomiting as a result.
General respiratory or skin sensitisation	No known sensitizing effect.
Inhalation	May be mildly irritating to the respiratory system.
Skin contact	May be mildly irritating to the skin.
Eye contact	May be mildly irritating to the eyes.
Ingestion	May cause nausea and vomiting.
Germ cell mutagenicity, human experience	No known mutagenicity.
Carcinogenicity, other information	No known carcinogenicity.
Reproductive toxicity	No known reproductive toxicity.
STOT-repeated exposure	Not known.
Aspiration hazard	No aspiration hazard known.

SECTION 12: Ecological information

12.1. Toxicity

Substance	Potassium perchlorate
Acute aquatic, fish	**Value:** = 2511 mg/l **Test duration:** 96h **Method:** LC50 **Comments:** Not hazardous to aquatic organisms.
Substance	Sulphur
Acute aquatic, fish	**Value:** = 866 mg/l **Test duration:** 96h **Species:** Brachydanio rerio **Method:** LC50

	Comments: Not hazardous to aquatic organisms.
Substance	Potassium nitrate
Acute aquatic, algae	**Value:** = 0,14 mg/l **Test duration:** 72h **Method:** IC50 **Comments:** Very toxic to aquatic organisms.
Substance	Sulphur
Acute aquatic, Daphnia	**Value:** > 5000 mg/l **Test duration:** 48h **Species:** D.magna **Method:** EC50 **Comments:** Not hazardous to aquatic organisms.
Ecotoxicity	Producted has not been tested. The data below is based on individual ingredients of the product.

12.2. Persistence and degradability

Persistence and degradability, comments	Not applicable. Contains inorganic materials and is in solid form.

12.3. Bioaccumulative potential

Bioaccumulative potential	Not expected to bioaccumulate.

12.4. Mobility in soil

Mobility	None – product in form of solid article.
Water solubility	Comments: Insoluble.

12.5. Results of PBT and vPvB assessment

PBT assessment results	Does not fulfil the criteria for classification as PBT.
vPvB evaluation results	Does not fulfil the criteria for classification pub.

12.6. Other adverse effects

Environmental details, summation	Not classified as toxic to water (the IMDG-code).

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Specify the appropriate methods of disposal	Waste should be collected in a separate container. NO SMOKING!
Relevant waste regulation	Waste regulation, SFS 2011:927.
Hazardous waste product	Unused product is hazardous waste and must be disposed of in accordance with national and local regulations. Contact approved waste disposal service to dispose of this material.
Hazardous waste packing	Used product treated as ordinary plastic / metallic waste. DO NOT TRY TO DISASSEMBLE UNUSED PRODUCT! Contaminated packaging may pose a fire

	hazard.
Product classified as hazardous waste	Yes
Packaging classified as hazardous waste	Yes
EWC waste code	EWC: 160402 fireworks wastes
Other information	Contaminated packing may burn rapidly.

SECTION 14: Transport information

14.1. UN number

ADR / RID / ADN	0453
IMDG	0453
ICAO / IATA	0453
Comments	Article Number: 346280

14.2. UN proper shipping name

ADR / RID / ADN	ROCKETS, LINE-THROWING
IMDG	ROCKETS, LINE-THROWING
ICAO / IATA	ROCKETS, LINE-THROWING

14.3. Transport hazard class(es)

ADR / RID / ADN	1.4G
IMDG	1.4G
ICAO / IATA	1.4G

14.4. Packing group

14.5. Environmental hazards

14.6. Special precautions for user

Special safety 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

Additional information

Additional information	UN-number: 0240 Rockets, line-throwing. Packaging in cardboard 1.3G (not USA). Packaging instructions: P130 UN-number: 0453 Rockets, line-throwing. Packaging in steel cage + cardboard: 1.4G. Packaging instructions: P130. Order article number: 346280

IMDG / ICAO / IATA Other information

IMDG Other information	Swedish Rescue Service Agency Cert. No.: 2015-3834 (9-10)

	EX-nr (DOT/USA): EX2008100144 (UN-nr 0453)
EmS	F-B, S-X

SECTION 15: Regulatory information

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

Legislation and regulations	Safety data sheet and classification in accordance with regulation 1272/2008 /EC (CLP) and regulation 830/2015/EC.

15.2. Chemical safety assessment

Chemical safety assessment performed	Yes
Chemical safety assessment	Chemical safety investigation (CSI) is established for the product.

SECTION 16: Other information

List of relevant H-phrases (Section 2 and 3)	H203 Explosive; fire, blast or projection hazard. H271 May cause fire or explosion; strong oxidiser. H272 May intensify fire; oxidiser. H302 Harmful if swallowed. H315 Causes skin irritation. H400 Very toxic to aquatic life.
Classification according to Regulation (EC) No 1272/2008 [CLP / GHS]	Expl. 1.3; H203 Acute tox. 4; H302
CLP classification, comments	Classification and labelling are based on CLP (Regulation 1272/2008/EC and Regulation 830/2015/EC)
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