



MSDS – MATERIAL SAFETY DATA SHEET

SUPPLEMENTARY SURVIVAL KIT

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

1.1. Product identifier

Trade name: Supplementary Survival Kit

P/N: P3APP000511A, P3APP000512A, P3APP000514A, P3APP000515A

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

Identified uses: Survival Kit for aircrafts used as Life Saving Appliance.

Uses advised against: uses not listed in the “identified uses” section above.

1.3. Details of the supplier of the safety data sheet

umlaut engineering GmbH (FSCM CE579)

Blohmstr. 12

21079 Hamburg, Germany

E-Mail: hw.customer-service@accenture.com

Internet: <https://www.accenture.com/us-en/services/industry-x/air-safety-solutions>

1.4. Emergency telephone number

GIZ Giftinformationszentrum-Nord (24hours) **+49 (0) 551-19240**

Languages of the phone service: German, English

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation 1272/2008/EC and following amendments thereof:

Classification and hazard statements:

Explosive Division 1.4

H204 Fire or projection.

Acute toxicity, category 4

H302 Harmful if swallowed.

Serious eye damage Category 1
damage.

H318 It causes serious eye

Hazardous to the aquatic environment Chronic Category 3
with long lasting effects.

H412 Harmful to aquatic life



2.2. Label elements

Danger labeling under the Regulation (EC) 1272/2008 (CLP) and subsequent amendments.
Hazard pictograms:



Safety advices:

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

P250 Do not subject to mechanical shock

P370 + P380 in case of fire evacuate the area

P374 Fight fire with normal precautions from a reasonable distance.

It Contains: strontium nitrate Potassium perchlorate

The mixture of the aerial flare propellant contains 8.56% of components whose acute oral toxicity is not known.

2.3. Item description and other hazards

The Product described by this MSDS is a fabric bag which contains components which are needed in case of an emergency landing of an aircraft. It contains regulated and non-regulated components like emergency water packs and glucose packs. The only regulated component within this Product is an aerial flare which contains hazardous material. Under conditions of normal use, it is unlikely that operators are exposed to these materials. Normal use means that the Product remains closed and is only opened in case of an emergency landing or for maintenance.

All hazards described in the following Sections are only related to the aerial flare inside the Product.

Minor fragment projection hazard.

Toxic fumes may be released in case of fire.

Un-burnt items involved in a fire:

DO NOT REUSE AND DO NOT STORE WITH OTHER PRODUCTS.



SECTION 3: Composition/information on ingredients

3.1. Substances

N/A

3.2. Mixtures

This product has been identified as “article” in accordance with the Reg. (CE) 1907/2006 “REACH” and Reg. (CE) 1272/2008 “CLP”.

The aerial flare contains pyrotechnic mixture active mass 135 g.

Aerial flare contents:

Substance	Identification number	Quantity x=Conc. In %	Classification (Reg. CE 1272/2008)
Potassium Perchlorate	CAS No. 7778-74-7 EC No. 231-912-9	5 < x < 10	Ox. Liq. 1 H271, Acute Tox. 4 H302, H373 STOT RE 2, Eye Irrit. 2 H319
Potassium Nitrate	CAS No. 7757-79-1 EC No. 231-818-8	0 < x < 1	Ox. Sol. 3, H272
Strontium Nitrate	CAS No. 10042-76-9 EC No. 231-783-9	10 < x < 13	R23,R24,R25 Flam. Sol. 2, H228
Magnesium powder	CAS No. 7439-95-4 EC No. 231-104-6	50 < x < 70	Pyr. Solid 1; H250 Water React. Flam. Gas 1; H260
Coal	CAS No. 16291-96-6 EC No. 240-383-3	0 < x < 1	Flam. Sol. 2, H228
Sulfur	CAS No. 7778-74-7 EC No. 231-912-9	0 < x < 1	Flam. Sol. 2; H228 Skin Irrit. 2; H315

SECTION 4: First aid measures

4.1. Description of first aid measures

General:

In case of unconsciousness, loosen tight-fitting clothing. If respiratory problems, provide artificial respiration or oxygen. Seek medical advice.

In case of skin contact:

Does not exist under normal or reasonably foreseeable handling Article.

In case of skin contact with the material inside the product:

If the explosive material contained in Article penetrate clothes, remove immediately and wash skin

thoroughly with plenty of soap and water

Immediately wash contaminated skin with plenty of soap and water

If irritation persists after washing, seek medical attention.

In case of eyes contact:

Does not exist under normal or reasonably foreseeable handling.

Immediately wash contaminated skin with plenty of soap and water.

In case of contact with eyes, the material inside the product:

Immediately flush eyes with plenty of water for at least 15 minutes holding the eyelids open

Seek immediate medical attention.

**In case of ingestion:**

Does not exist under normal or reasonably foreseeable handling Article.

In case there is ingestion of the material inside the product:

Obtain immediate medical assistance.

In case of inhalation:

Does not exist under normal or reasonably foreseeable conditions of handling product.

In case there is contact with the respiratory tract of the material inside the product:

Bring the affected person, if possible, outdoors

Keep the affected person warm and dry

Obtain medical assistance as soon as possible.

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

Not needed under normal conditions of handling charges.

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

No specific treatment required.

Information for health personnel: symptomatic treatment.

SECTION 5: Firefighting measures**5.1. Extinguishing media**

Suitable extinguishing media: Fire extinguishers appropriate if the outbreak is contained.

Large volumes of water.

Non-suitable extinguishing media: No one in particular.

5.2. Special hazards arising from the substance or mixture

In the event of a fire involving the product:

- Extreme risk of explosion when the fire reaches the object.
- Acid smoke, irritating and toxic is emitted in case of fire. The gases that are produced are, mainly, carbon monoxide and nitrogen oxides. It is therefore necessary not breathe fumes in the event of combustion.

5.3. Advice for firefighters

Cool down with water jets the containers to prevent product decomposition and the development of substances potentially hazardous for health. Always wear full fire prevention gear. Collect extinguishing water which must not be



discharged into drains. Dispose of contaminated water used for extinction and the remains according to current regulations.

EQUIPMENT

normal clothing for fire fighting, such as a compressed air breathing apparatus open circuit (EN 137), complete flame retardant (EN469), flame-resistant gloves (EN 659) and boots for the Fire Brigade (HO A29 or A30).

SECTION 6: Accidental release measure

6.1. Personal precautions, protective equipment and emergency procedures

Avoid the formation of dust spraying the product with water if there are no contraindications. Wear suitable protective equipment (including personal protective equipment referred to in section 8 of the safety data sheet) to prevent any contamination of skin, eyes and personal clothing. These indications are valid both for the employees to work for the emergency interventions.

6.2. Environmental precautions

Preventing that the product must not penetrate the sewers, surface water, groundwater.

6.3. Methods and material for containment and cleaning up

Collect the spilled material and place in containers for recovery or disposal. Discard the residue with water spray if there are no contraindications.

Ensure adequate ventilation of the place affected by the loss. To evaluate the compatibility of the container to be used with the product, verifying section 10. The disposal of contaminated material must be carried out in accordance with the provisions of section 13.

6.4. Reference to other sections

Any information on personal protection and disposal is given in sections 8 and 13.



SECTION 7: Handling and storage

7.1. Precautions for safe handling

Avoid sources of ignition. Do not eat, drink or smoke while handling it. Remove contaminated clothing and protective equipment before entering areas in which you eat.

7.2. Conditions for safe storage, including any incompatibilities

Store only in the original container. Keep the product in clearly labeled containers. Keep container tightly sealed. Absolutely avoid contact with water or that it can absorb moisture. Avoid shocks. Avoid overheating. Store in a ventilated place, away from sources of ignition. Store containers away from any incompatible materials, checking section 10.

7.3. Specific end use(s)

It is intended for the civil use.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Chlorate CHROME								
Concentration expected not to impact on the environment - PNEC								
Reference value in fresh water								
Reference value in seawater								
Reference value for STP microorganisms								
Health - Derived No Effect - DNEL / DMEL								
	Effects on consumers				Effects on workers			
Route of Exposure	acute Local	acute systemic	chronic Rooms	chronic systemic	acute Local	acute systemic	chronic Rooms	chronic systemic
Oral				0.06 mg / kg bw / d				
Inhalation				0.26 mg / m3				5.76 mg / m3
dermal				0.11 mg / kg bw / d				3.5 mg / kg bw / d
Strontium nitrate								
Concentration expected not to impact on the environment - PNEC								
Reference value in fresh water				499	mg / l			
Setpoint for the food chain (secondary poisoning)				7816	mg / kg			
Health - Derived No Effect - DNEL / DMEL								
	Effects on consumers				Effects on workers			
Route of Exposure	acute Local	acute systemic	chronic Rooms	chronic systemic	acute Local	acute systemic	chronic Rooms	chronic systemic
Oral				1.2 mg / kg bw / d				
Inhalation				2.4 mg / m3				7.9 mg / m3
dermal								40.1 mg / kg bw / d

VND = hazard identified but no DNEL / PNEC available; NEA = no anticipated exposure; NPI = no identified hazard.



It is recommended to consider in the process of risk assessment of occupational exposure limit values provided by 'ACGIH for inert powders not otherwise classified (PNOC respirable fraction: 3 mg / mc; PNOC inhalable fraction: 10 mg / mc). In case of exceeding these limits we recommend the use of a P-type filter, the class (1, 2 or 3) must be chosen depending on the outcome of the risk assessment.

8.2. Exposure controls

Given that the use of appropriate technical measures should always take priority over personal protection equipment, ensure good ventilation in the workplace through effective local aspiration.

When selecting personal protective equipment, if necessary, request advice from your chemical substance suppliers. The personal protective equipment must bear the CE mercatura attesting to their compliance with applicable regulations.

Provide emergency shower with visoculare pan.

Respiratory protection:

We recommend the use of a filtering face mask P-type, the class (1, 2 or 3) and the actual need, it must be defined depending on the outcome of the risk assessment (ref. Standard EN 149).

Eye protection:

It is advisable to wear protective airtight goggles (ref. Standard EN 166).

Protection for skin:

Wear work clothing with long sleeves and safety footwear for professional use category I (ref. 2016/425 Regulations and standard EN ISO 20344). Wash with soap and water after removing protective clothing. Consider providing antistatic clothing in case the workplace presents a risk of explosion.

Protection for hands:

Use appropriate safety shoes and antistatic.

Other Information:

Ensure good ventilation at the workplace.



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

a. appearance	Aerial flare: Red plastic cylinder
b. odour	N/A
c. olfactory threshold	N/A
d. pH	N/A
e. melting point/freezing point	N/A
f. initial boiling point and boiling range	N/A
g. flash point	300°C (for the rocket)
h. evaporation rate	N/A
i. flammability (solids, gases)	N/A
j. upper/lower flammability or explosive limits	N/A
k. vapour pressure	N/A
l. vapour density	N/A
m. relative density	N/A
n. solubility	N/A
o. partition coefficient noctanol/water (Kow)	N/A
p. auto-ignition temperature	130°C (for the igniter)
q. decomposition temperature	N/A
r. viscosity	N/A
s. explosive properties	N/A
t. oxidizing properties	N/A

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is stable under the conditions described in Section 7.

10.2. Chemical stability

The product is stable under the conditions described in Section 7.

10.3. Possibility of hazardous reactions

The product is stable under the conditions described in Section 7.

10.4. Conditions to avoid

Direct contact with intense heat sources.

10.5. Incompatible materials

N/A

10.6. Hazardous decomposition products

N/A



SECTION 11: Toxicological information

11.1. Information on toxicological effects

Metabolism, kinetics, mechanism of action and other information

Information not available

Information on likely routes of exposure

Information not available

Immediate, delayed and chronic effects and effects from short- and long-term exposure

Information not available

interactive effects

Information not available

ACUTE TOXICITY

LC50 (Inhalation) of the mixture:

> 5 mg / l

LD50 (Oral) of the mixture:

1562.50 mg / kg

LD50 (Dermal) of the mixture:

Not classified (no relevant component)

strontium nitrate

LD50 (Oral) > 2000 mg / kg Rat

SKIN CORROSION / IRRITATION

Not responding to the classification criteria for this hazard class

SERIOUS EYE DAMAGE / IRRITATION

It causes serious eye damage

RESPIRATORY OR SKIN SENSITIZATION

Not responding to the classification criteria for this hazard class

THE GERM CELL MUTAGENICITY

Not responding to the classification criteria for this hazard class

CARCINOGENICITY

Not responding to the classification criteria for this hazard class

TOXIC TO REPRODUCTION

Not responding to the classification criteria for this hazard class

SPECIFIC TARGET ORGAN TOXICITY (STOT) - SINGLE EXPOSURE

Not responding to the classification criteria for this hazard class

SPECIFIC TARGET ORGAN TOXICITY (STOT) - REPEATED EXPOSURE

Not responding to the classification criteria for this hazard class

HAZARD INTAKE

Not responding to the classification criteria for this hazard class



SECTION 12: Ecological information

This product is dangerous for the environment and is harmful to aquatic organisms and long-term adverse effects in the aquatic environment.

12.1. Toxicity

LC50 - Fish	> 973 mg / l / 96h Cyprinus carpio
EC50 – Crustaceans magna	3019 mg / l / 48h Daphnia
Algae Chronic NOEC / Aquatic Plants Pseudokirchneriella subcapitata	> 1047 mg / l

12.2. Persistence and degradability

strontium nitrate

Degradability: data not available

Potassium nitrate Solubility in water > 10000 mg / l

Degradability: data not available

12.3. Bioaccumulative potential

Information not available

12.4. Mobility in soil

Information not available

12.5. Results of PBT and vPvB assessment

On the basis of available data, the product does not contain PBT or vPvB substances in a percentage higher than 0.1%.

12.6. Other adverse effects

Information not available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product residues should be considered special hazardous waste. The hazard level of waste containing this product should be evaluated according to applicable regulations.

Disposal must be performed through an authorized waste management, in compliance with national and local regulations.

The transport of waste may be subject to ADR.

**CONTAMINATED PACKAGING**

Contaminated packaging must be recovered or disposed of in compliance with national regulations on waste management.

SECTION 14: Transport information**14.1. UN number**

UN 3072

14.2. UN proper shipping name

LIFE-SAVING APPLIANCES NOT SELF-INFLATING containing dangerous goods as equipment

14.3. Transport hazard class(es)

ADR / RID:	Class: 9	Label: 9
IMDG:	Class: 9	Label: 9
IATA:	Class: 9	Label: 9

**14.4. Packing group**

N/A

14.5. Environmental hazards

ADR/RID/ADN: not applicable

IMO: not applicable

ICAO: not applicable

14.6. Special precautions for user

Special Provision: 296, 635

Packing instructions: P905

Limited Quantities: -

Excepted quantities: E0

Tunnel restriction code: (E)

14.7. Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code

No available data



SECTION 15: Regulatory information

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

The Product is a good classified as hazardous for transportation

Applicable modal regulations: ADR, ADN, RID, IMDG, ICAO.

Substances in Candidate List (Art. 59 REACH)

On the basis of available data, the product does not contain SVHCs as a percentage greater than 0.1%.

15.2. Chemical safety assessment

N/A

SECTION 16: Other information

Abbreviations and acronyms

Expl. 1.4	Explosive Division 1.4
Ox. Liq. 1	Combustion Liquid, Category 1
Ox. Sol. 1	Oxidising solid, category 1
Acute Tox. 4	Acute toxicity, category 4
STOT RE 2	specific target organ toxicity - repeated exposure, category 2
Eye Dam. 1	Serious eye damage, Category 1
Eye Irrit. 2	Eye irritation, Category 2
Aquatic Chronic 2	Hazardous to the aquatic environment Chronic Category 2
Aquatic Chronic 3	Hazardous to the aquatic environment Chronic Category 3
H204	Fire or projection.
H271	It may cause a fire or explosion; strong oxidiser.
H302	Harmful if swallowed.
H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.
H318	It causes serious eye damage.
H319	It causes serious eye irritation.
H411	Toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.

LEGEND:

- ADR: European Agreement on the Transport of Dangerous Goods by Road
- CAS NUMBER: Number of the Chemical Abstract Service
- EC50: Concentration that gives effect to 50% of the population subject to testing
- EC NUMBER: Identification number for ESIS (European database of existing substances)
- CLP: EC Regulation 1272/2008
- DNEL: Derived no effect level
- EmS: Emergency Schedule
- GHS: Globally Harmonized System of Classification and Labeling of Chemicals
- IATA DGR: Regulation for the transport of dangerous goods by the International Air Transport Association
- IC50: Concentration of immobilization of 50% of the population subject to testing
- IMDG: International Maritime Code for Dangerous Goods



- IMO: International Maritime Organization
- INDEX NUMBER: identification number in Annex VI of the CLP
- LC50: Lethal Concentration 50%
- LD50: Lethal Dose 50%
- OEL: Occupational Exposure Level
- PBT: Persistent, bioaccumulative and toxic according to REACH
- PEC: Predicted Environmental Concentration
- PEL: Predicted Exposure Level
- PNEC: Predicted No Effect Concentration
- REACH: EU Regulation 1907/2006
- RID: Regulations for the international carriage of dangerous goods by rail
- TLV: TLV
- TLV CEILING: Concentration which must not be exceeded during any time of occupational exposure.
- TWA STEL: Short Term Exposure Limit
- TWA: Medium term exposure limit weighed
- VOC: Volatile Organic Compound
- vPvB: Very persistent and very bioaccumulative according to REACH
- Water hazard class: Water hazard class (Germany).

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Note: this MSDS is not to be considered as a MSDS compiled in accordance with the art. 31 of Regulation (CE) 1907/2006 since the product is defined as "article".



Record of Revision

Issue	Date	Effect on		Reason – Origin - Comment
		Page	Para.	
A	08.11.2021	All	All	Initial Release
B	26.02.2024	1	1.3	Email and Internet address updated
		All	All	Document layout updated