SAFETY DATA SHEET

Zinc-Alu Spray

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

1.1 Product identifier

Product name : Zinc-Alu Spray

UFI : KYG1-10A6-A00W-P5R0

Product code : 110020

Color : Silver.

Product description : Aerosol product

Product type : Aerosol.

Other means of identification : Not available.

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

Identified uses

Aerosol product

Uses advised against

Not applicable.

1.3 Details of the supplier of the safety data sheet

WEICON GmbH & Co. KG
Königsberger Str. 255,
48157 Münster, Germany
phone:+49 251 93220,
email: info@weicon.de,
URL: www.weicon.de

e-mail address of person responsible for this SDS : msds@weicon.de

1.4 Emergency telephone number

National advisory body/Poison Center

Telephone number : EMERGENCY CONTACT – UK, UAE, South Africa (24h): Tel: ++44 1865 407333 (English)
TRANSPORT EMERGENCY CONTACT - UK, UAE, South Africa (24h): Tel: ++44 1865 407333 (English)

SECTION 2: Hazards identification

2.1 Classification of the substance or mixture

Product definition : Mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Aerosol 1, H222, H229
Eye Irrit. 2, H319
STOT SE 3, H336
Aquatic Chronic 3, H412

The product is classified as hazardous according to Regulation (EC) 1272/2008 as amended.

Ingredients of unknown toxicity : 7.2 percent of the mixture consists of component(s) of unknown acute oral toxicity
1.8 percent of the mixture consists of component(s) of unknown acute dermal toxicity
1.8 percent of the mixture consists of component(s) of unknown acute inhalation toxicity

SECTION 2: Hazards identification

Ingredients of unknown ecotoxicity : Contains 5.5% of components with unknown hazards to the aquatic environment

See Section 16 for the full text of the H statements declared above.

See Section 11 for more detailed information on health effects and symptoms.

2.2 Label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : H222, H229 - Extremely flammable aerosol. Pressurized container: may burst if heated.
H319 - Causes serious eye irritation.
H336 - May cause drowsiness or dizziness.
H412 - Harmful to aquatic life with long lasting effects.

Precautionary statements

P101 - If medical advice is needed, have product container or label at hand.
P102 - Keep out of reach of children.

Prevention : P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211 - Do not spray on an open flame or other ignition source.
P251 - Do not pierce or burn, even after use.
P261 - Avoid breathing dust or mist.
P264 - Wash hands thoroughly after handling.
P271 - Use only outdoors or in a well-ventilated area.
P273 - Avoid release to the environment.
P280 - Wear eye or face protection.

Response : P304 + P312 - IF INHALED: Call a POISON CENTER or doctor if you feel unwell.
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P337 + P313 - If eye irritation persists: Get medical advice or attention.

Storage : P405 - Store locked up.
P410 + P412 - Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.
P403 + P233 - Store in a well-ventilated place. Keep container tightly closed.

Disposal : P501 - Dispose of waste according to applicable legislation.

Hazardous ingredients : acetone and ethyl acetate

Supplemental label elements : Repeated exposure may cause skin dryness or cracking.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles : Not applicable.

Special packaging requirements

Containers to be fitted with child-resistant fastenings : Not applicable.

Tactile warning of danger : Not applicable.

2.3 Other hazards

SECTION 2: Hazards identification

Product meets the criteria for PBT or vPvB according to Regulation (EC) No. 1907/2006, Annex XIII : This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

Other hazards which do not result in classification : None known.

Aspiration hazard - Not applicable.

SECTION 3: Composition/information on ingredients

3.2 Mixtures : Mixture

Product/ingredient name	Identifiers	%	Classification	Specific Conc. Limits, M-factors and ATEs	Type
butane	REACH #: 01-2119474691-32 EC: 203-448-7 CAS: 106-97-8 Index: 601-004-00-0	≥10 - ≤25	Flam. Gas 1A, H220 Press. Gas (Comp.), H280	-	[1] [2]
propane	REACH #: 01-2119486944-21 EC: 200-827-9 CAS: 74-98-6 Index: 601-003-00-5	≥10 - ≤25	Flam. Gas 1A, H220 Press. Gas (Comp.), H280	-	[1] [2]
acetone	REACH #: 01-2119471330-49 EC: 200-662-2 CAS: 67-64-1 Index: 606-001-00-8	≥10 - ≤25	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336 EUH066	-	[1] [2]
ethyl acetate	REACH #: 01-2119475103-46 EC: 205-500-4 CAS: 141-78-6 Index: 607-022-00-5	≥10 - ≤25	Flam. Liq. 2, H225 Eye Irrit. 2, H319 STOT SE 3, H336 EUH066	-	[1] [2]
xylene	REACH #: 01-2119488216-32 EC: 215-535-7 CAS: 1330-20-7 Index: 601-022-00-9	≥5 - <10	Flam. Liq. 3, H226 Acute Tox. 4, H312 Acute Tox. 4, H332 Skin Irrit. 2, H315 Eye Irrit. 2, H319 STOT SE 3, H335 STOT RE 2, H373 Asp. Tox. 1, H304	ATE [Dermal] = 1100 mg/kg ATE [Inhalation (vapours)] = 11 mg/l	[1] [2]
Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics, <2% aromatics	REACH #: 01-2119463258-33 EC: 919-857-5 CAS: 64742-48-9	≥5 - ≤10	Flam. Liq. 3, H226 STOT SE 3, H336 Asp. Tox. 1, H304 EUH066	-	[1]
Aluminium powder (stabilized)	REACH #: 01-2119529243-45 EC: 231-072-3 CAS: 7429-90-5 Index: 013-002-00-1	≥5 - ≤10	Flam. Sol. 1, H228 Water-react. 2, H261	-	[1] [2]
Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics	REACH #: 01-2119457273-39 EC: 918-481-9	≥5 - ≤10	Asp. Tox. 1, H304 EUH066	-	[1]

SECTION 3: Composition/information on ingredients

Zinc powder - zinc dust (stabilized)	REACH #: 01-2119467174-37 EC: 231-175-3 CAS: 7440-66-6 Index: 030-001-01-9	≥1 - <2.5	Aquatic Acute 1, H400 Aquatic Chronic 1, H410 **See Section 16 for the full text of the H statements declared above.**	M [Acute] = 1 M [Chronic] = 1	[1] [2]

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment, are PBTs, vPvBs or Substances of equivalent concern, or have been assigned a workplace exposure limit and hence require reporting in this section.

Type

[1] Substance classified with a physical, health or environmental hazard
[2] Substance with a workplace exposure limit

Occupational exposure limits, if available, are listed in Section 8.

SECTION 4: First aid measures

4.1 Description of first aid measures

Eye contact : Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.

Inhalation : Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Get medical attention. If necessary, call a poison center or physician. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Skin contact : Wash skin thoroughly with soap and water or use recognized skin cleanser. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.

Ingestion : Wash out mouth with water. Remove dentures if any. If material has been swallowed and the exposed person is conscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention. If necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Protection of first-aiders : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

4.2 Most important symptoms and effects, both acute and delayed

Over-exposure signs/symptoms

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

SECTION 4: First aid measures

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

Skin contact : Adverse symptoms may include the following:
irritation
dryness
cracking

Ingestion : No specific data.

4.3 Indication of any immediate medical attention and special treatment needed

Notes to physician : Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

Specific treatments : No specific treatment.

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

5.2 Special hazards arising from the substance or mixture

Hazards from the substance or mixture : Extremely flammable aerosol. Runoff to sewer may create fire or explosion hazard. In a fire or if heated, a pressure increase will occur and the container may burst, with the risk of a subsequent explosion. Gas may accumulate in low or confined areas or travel a considerable distance to a source of ignition and flash back, causing fire or explosion. Bursting aerosol containers may be propelled from a fire at high speed. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous combustion products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide
metal oxide/oxides

5.3 Advice for firefighters

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode. Clothing for fire-fighters (including helmets, protective boots and gloves) conforming to European standard EN 469 will provide a basic level of protection for chemical incidents.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. In the case of aerosols being ruptured, care should be taken due to the rapid escape of the pressurized contents and propellant. If a large number of containers are ruptured, treat as a bulk material spillage according to the instructions in the clean-up section. Do not touch or walk through spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

6.2 Environmental precautions

: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

6.3 Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Absorb with an inert material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations.

6.4 Reference to other sections

: See Section 1 for emergency contact information.
See Section 8 for information on appropriate personal protective equipment.
See Section 13 for additional waste treatment information.

SECTION 7: Handling and storage

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

7.1 Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C. Do not pierce or burn, even after use. Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing gas. Avoid breathing vapor or mist. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Store and use away from heat, sparks, open flame or any other ignition source. Use explosion-proof electrical (ventilating, lighting and material handling) equipment. Use only non-sparking tools. Empty containers retain product residue and can be hazardous.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

7.2 Conditions for safe storage, including any incompatibilities

SECTION 7: Handling and storage

Store in accordance with local regulations. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Eliminate all ignition sources. Use appropriate containment to avoid environmental contamination. See Section 10 for incompatible materials before handling or use.

Seveso Directive - Reporting thresholds

Danger criteria

Category	Notification and MAPP threshold	Safety report threshold
P3a	150 tonnes	500 tonnes

7.3 Specific end use(s)

Recommendations : Not available.

Industrial sector specific solutions : Not available.

SECTION 8: Exposure controls/personal protection

The information in this section contains generic advice and guidance. Information is provided based on typical anticipated uses of the product. Additional measures might be required for bulk handling or other uses that could significantly increase worker exposure or environmental releases.

8.1 Control parameters

Occupational exposure limits

Product/ingredient name	Exposure limit values
butane	**DFG MAC-values list (Germany, 7/2024) [Butane]** Develop D. TWA 8 hours: 1000 ppm. PEAK 15 minutes: 4000 ppm 4 times per shift [Interval: 1 hour]. TWA 8 hours: 2400 mg/m³. PEAK 15 minutes: 9600 mg/m³ 4 times per shift [Interval: 1 hour]. **TRGS 900 OEL (Germany, 3/2025)** TWA 8 hours: 2400 mg/m³. PEAK 15 minutes: 9600 mg/m³. TWA 8 hours: 1000 ppm. PEAK 15 minutes: 4000 ppm.
propane	**DFG MAC-values list (Germany, 7/2024)** Develop D. TWA 8 hours: 1000 ppm. PEAK 15 minutes: 4000 ppm 4 times per shift [Interval: 1 hour]. TWA 8 hours: 1800 mg/m³. PEAK 15 minutes: 7200 mg/m³ 4 times per shift [Interval: 1 hour]. **TRGS 900 OEL (Germany, 3/2025)** TWA 8 hours: 1800 mg/m³. PEAK 15 minutes: 7200 mg/m³. TWA 8 hours: 1000 ppm. PEAK 15 minutes: 4000 ppm.
acetone	**DFG MAC-values list (Germany, 7/2024)** Develop B. TWA 8 hours: 500 ppm. PEAK 15 minutes: 1000 ppm 4 times per shift [Interval: 1 hour]. TWA 8 hours: 1200 mg/m³. PEAK 15 minutes: 2400 mg/m³ 4 times per shift [Interval: 1 hour]. **TRGS 900 OEL (Germany, 3/2025)** TWA 8 hours: 1200 mg/m³. PEAK 15 minutes: 2400 mg/m³. TWA 8 hours: 500 ppm. PEAK 15 minutes: 1000 ppm. **EU OEL (Europe, 1/2022)** TWA 8 hours: 500 ppm. TWA 8 hours: 1210 mg/m³.
ethyl acetate	**DFG MAC-values list (Germany, 7/2024)** Develop C.

SECTION 8: Exposure controls/personal protection

	TWA 8 hours: 200 ppm. PEAK 15 minutes: 400 ppm 4 times per shift [Interval: 1 hour]. TWA 8 hours: 750 mg/m³. PEAK 15 minutes: 1500 mg/m³ 4 times per shift [Interval: 1 hour]. **TRGS 900 OEL (Germany, 3/2025)** TWA 8 hours: 730 mg/m³. PEAK 15 minutes: 1460 mg/m³. TWA 8 hours: 200 ppm. PEAK 15 minutes: 400 ppm. **EU OEL (Europe, 1/2022)** STEL 15 minutes: 400 ppm. STEL 15 minutes: 1468 mg/m³. TWA 8 hours: 200 ppm. TWA 8 hours: 734 mg/m³.
xylene	**DFG MAC-values list (Germany, 7/2024) [Xylene]** Develop D. Absorbed through skin. TWA 8 hours: 50 ppm. PEAK 15 minutes: 100 ppm 4 times per shift [Interval: 1 hour]. TWA 8 hours: 220 mg/m³. PEAK 15 minutes: 440 mg/m³ 4 times per shift [Interval: 1 hour]. **TRGS 900 OEL (Germany, 3/2025) [Xylol]** Absorbed through skin. TWA 8 hours: 220 mg/m³. PEAK 15 minutes: 440 mg/m³. TWA 8 hours: 50 ppm. PEAK 15 minutes: 100 ppm. **EU OEL (Europe, 1/2022) [xylene, mixed isomers]** Absorbed through skin. TWA 8 hours: 50 ppm. TWA 8 hours: 221 mg/m³. STEL 15 minutes: 100 ppm. STEL 15 minutes: 442 mg/m³.
Aluminium powder (stabilized)	**DFG MAC-values list (Germany, 7/2024) [Aluminium compounds, soluble (non-irritating)]** Develop C. PEAK 15 minutes: 0.01 mg/m³ 4 times per shift [Interval: 1 hour]. Form: inhalable fraction. TWA 8 hours: 0.005 mg/m³. Form: inhalable fraction. **DFG MAC-values list (Germany, 7/2024) [Aluminium compounds, soluble (irritating)]** Develop C. PEAK 15 minutes: 0.0004 mg/m³ 4 times per shift [Interval: 1 hour]. Form: inhalable fraction. TWA 8 hours: 0.0002 mg/m³. Form: inhalable fraction. **DFG MAC-values list (Germany, 7/2024) [Aluminium and its poorly soluble compounds]** Carc 4, Develop D. PEAK 15 minutes: 4 mg/m³ 4 times per shift [Interval: 1 hour]. Form: inhalable fraction. PEAK 15 minutes: 0.4 mg/m³ 4 times per shift [Interval: 1 hour]. Form: respirable fraction. TWA 8 hours: 0.5 mg/m³. Form: inhalable fraction. TWA 8 hours: 0.05 mg/m³. Form: respirable fraction. **TRGS 900 OEL (Germany, 3/2025) [Allgemeiner Staubgrenzwert]** TWA 8 hours: 1.25 mg/m³. Form: alveolar fraction. PEAK 15 minutes: 20 mg/m³. Form: inhalable fraction. TWA 8 hours: 10 mg/m³. Form: inhalable fraction. PEAK 15 minutes: 2.5 mg/m³. Form: alveolar fraction.
Zinc powder - zinc dust (stabilized)	**DFG MAC-values list (Germany, 7/2024) [Zinc and its inorganic compounds]** Develop C. PEAK 15 minutes: 0.4 mg/m³ 4 times per shift [Interval: 1 hour]. Form: respirable fraction. TWA 8 hours: 2 mg/m³. Form: inhalable fraction.

SECTION 8: Exposure controls/personal protection

	TWA 8 hours: 0.1 mg/m³. Form: respirable fraction. PEAK 15 minutes: 4 mg/m³ 4 times per shift [Interval: 1 hour]. Form: inhalable fraction.

Biological exposure indices

Product/ingredient name	Exposure indices
acetone	**DFG BEI-values list (Germany, 7/2024)** BEI: 50 mg/l, acetone [in urine]. Sampling time: end of exposure or end of shift. **TRGS 903 - BEI Values (Germany, 10/2024)** BEI: 50 mg/l, acetone [in urine]. Sampling time: end of exposure or end of shift.
xylene	**DFG BEI-values list (Germany, 7/2024) [Xylene (all isomers)]** Notes: danger from percutaneous absorption (see p. 211 and p. 228). BEI: 1800 mg/g creatinine, Methylhippuric acids (=toluric acids) (all isomers) [in urine]. Sampling time: end of exposure or end of shift. **TRGS 903 - BEI Values (Germany, 10/2024) [Xylol alle Isomeren]** BEI: 2000 mg/l, methylhippuric acid [in urine]. Sampling time: end of exposure or end of shift.
Aluminium powder (stabilized)	**DFG BEI-values list (Germany, 7/2024)** BEI: 50 µg/g creatinine, aluminium [in urine]. Sampling time: at the end of the shift, for long-term exposures after several previous shifts. **TRGS 903 - BEI Values (Germany, 10/2024)** BEI: 50 µg/g creatinine, aluminum [in urine]. Sampling time: at the end of the shift, for long-term exposure after several previous shifts.

Recommended monitoring procedures : Reference should be made to monitoring standards, such as the following: European Standard EN 689 (Workplace atmospheres - Guidance for the assessment of exposure by inhalation to chemical agents for comparison with limit values and measurement strategy) European Standard EN 14042 (Workplace atmospheres - Guide for the application and use of procedures for the assessment of exposure to chemical and biological agents) European Standard EN 482 (Workplace atmospheres - General requirements for the performance of procedures for the measurement of chemical agents) Reference to national guidance documents for methods for the determination of hazardous substances will also be required.

DNELs/DMELs

Product/ingredient name	Result
acetone	**DNEL - General population - Long term - Oral** 62 mg/kg bw/day Effects: Systemic **DNEL - General population - Long term - Dermal** 62 mg/kg bw/day Effects: Systemic **DNEL - Workers - Long term - Dermal** 186 mg/kg bw/day Effects: Systemic **DNEL - General population - Long term - Inhalation** 200 mg/m³ Effects: Systemic **DNEL - Workers - Long term - Inhalation**

SECTION 8: Exposure controls/personal protection

	1210 mg/m³ Effects: Systemic **DNEL - Workers - Short term - Inhalation** 2420 mg/m³ Effects: Local
ethyl acetate	**DNEL - General population - Long term - Oral** 4.5 mg/kg bw/day Effects: Systemic **DNEL - General population - Long term - Dermal** 37 mg/kg bw/day Effects: Systemic **DNEL - Workers - Long term - Dermal** 63 mg/kg bw/day Effects: Systemic **DNEL - General population - Long term - Inhalation** 367 mg/m³ Effects: Local **DNEL - General population - Long term - Inhalation** 367 mg/m³ Effects: Systemic **DNEL - General population - Short term - Inhalation** 734 mg/m³ Effects: Local **DNEL - General population - Short term - Inhalation** 734 mg/m³ Effects: Systemic **DNEL - Workers - Long term - Inhalation** 734 mg/m³ Effects: Local **DNEL - Workers - Long term - Inhalation** 734 mg/m³ Effects: Systemic **DNEL - Workers - Short term - Inhalation** 1468 mg/m³ Effects: Local **DNEL - Workers - Short term - Inhalation** 1468 mg/m³ Effects: Systemic
xylene	**DNEL - General population - Long term - Oral** 5 mg/kg bw/day Effects: Systemic **DNEL - General population - Long term - Inhalation** 65.3 mg/m³ Effects: Local **DNEL - General population - Long term - Inhalation** 65.3 mg/m³ Effects: Systemic

SECTION 8: Exposure controls/personal protection

	DNEL - General population - Long term - Dermal 125 mg/kg bw/day Effects: Systemic **DNEL - Workers - Long term - Dermal** 212 mg/kg bw/day Effects: Systemic **DNEL - Workers - Long term - Inhalation** 221 mg/m³ Effects: Local **DNEL - Workers - Long term - Inhalation** 221 mg/m³ Effects: Systemic **DNEL - General population - Short term - Inhalation** 260 mg/m³ Effects: Local **DNEL - General population - Short term - Inhalation** 260 mg/m³ Effects: Systemic **DNEL - Workers - Short term - Inhalation** 442 mg/m³ Effects: Local **DNEL - Workers - Short term - Inhalation** 442 mg/m³ Effects: Systemic
Aluminium powder (stabilized)	**DNEL - Workers - Long term - Inhalation** 3.72 mg/m³ Effects: Local **DNEL - Workers - Long term - Inhalation** 3.72 mg/m³ Effects: Systemic **DNEL - General population - Long term - Oral** 3.95 mg/kg bw/day Effects: Systemic

PNECs

Not available.

8.2 Exposure controls

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits. The engineering controls also need to keep gas, vapor or dust concentrations below any lower explosive limits. Use explosion-proof ventilation equipment.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

SECTION 8: Exposure controls/personal protection

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. Recommended : 1 - 4 hours (breakthrough time): Protective gloves made of nitrile rubber (material thickness of 0,4 mm); EN 374-5 Cat. III 4 - 8 hours (breakthrough time): Protective gloves made of Viton®/ butyl rubber (material thickness of 0,7 mm); EN388 Cat.II / EN374 Cat.III / EN374-2

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product. When there is a risk of ignition from static electricity, wear anti-static protective clothing. For the greatest protection from static discharges, clothing should include anti-static overalls, boots and gloves. Refer to European Standard EN 1149 for further information on material and design requirements and test methods.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. Recommended : organic vapor (Type AX) and particulate filter

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

SECTION 9: Physical and chemical properties

The conditions of measurement of all properties are at standard temperature and pressure unless otherwise indicated.

9.1 Information on basic physical and chemical properties

Appearance

Physical state : Gas. [Aerosol]

Color : Silver.

Odor : Characteristic.

Odor threshold : Not available.

Melting point/freezing point : Not applicable.

Boiling point or initial boiling point and boiling range : -44°C (-47.2°F)

Flammability : Flammable in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.

Lower and upper explosion limit : Not available.

Flash point : Closed cup: -97°C (-142.6°F)

Auto-ignition temperature : Not applicable.

Decomposition temperature : Not available.

pH : Not applicable.

SECTION 9: Physical and chemical properties

Viscosity : Dynamic (room temperature): Not available.
Kinematic (room temperature): Not available.
Kinematic (40°C): Not available.

Solubility :

Not available.

Solubility in water : Not available.

Partition coefficient n-octanol/water (log Pow) : Not applicable.

Vapor pressure : Not available.

Relative density : Not applicable.

Density : 1 g/cm³ [20°C (68°F)]

Relative vapor density : Not available.

Particle characteristics

Median particle size : Not applicable.

9.2 Other information

9.2.1 Information with regard to physical hazard classes

Heat of combustion : 30.61 kJ/g

Explosive properties : Explosive in the presence of the following materials or conditions: open flames, sparks and static discharge and heat.

Oxidizing properties : Not available.

Aerosol product

Type of aerosol : Spray

9.2.2 Other safety characteristics

Miscible with water : No.

SECTION 10: Stability and reactivity

10.1 Reactivity : No specific test data related to reactivity available for this product or its ingredients.

10.2 Chemical stability : The product is stable.

10.3 Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

10.4 Conditions to avoid : Avoid all possible sources of ignition (spark or flame).

10.5 Incompatible materials : No specific data.

10.6 Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1 Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

Product/ingredient name	Result

SECTION 11: Toxicological information

butane

Rat - Inhalation - LC50 Vapor
658000 mg/m³ [4 hours]

acetone

Rat - Oral - LD50
5800 mg/kg
Toxic effects: Behavioral - Altered sleep time (including change in righting reflex) Behavioral - Tremor

ethyl acetate

Rat - Oral - LD50
5620 mg/kg

xylene

Rat - Oral - LD50
4300 mg/kg
Toxic effects: Liver - Other changes Kidney, Ureter, and Bladder - Other changes

Mouse - Oral - LD50
2119 mg/kg

Human - Oral - LDLo
50 mg/kg

Mouse - Dermal - TDLo
727.3 ul/kg
Toxic effects: Metabolism (intermediary) - Effect on inflammation or mediation of inflammation

Rat - Oral - LD50
4300 mg/kg

Human - Oral - LDLo
50 mg/kg

Rabbit - Dermal - TDLo
4300 mg/kg
Toxic effects: Skin After topical exposure - Corrosive

Conclusion/Summary [Product] : Not available.

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
Zinc-Alu Spray	N/A	20000	N/A	200	N/A
butane	N/A	N/A	N/A	658	N/A
acetone	5800	N/A	N/A	N/A	N/A
ethyl acetate	5620	N/A	N/A	N/A	N/A
xylene	N/A	1100	N/A	11	N/A

Skin corrosion/irritation

Product/ingredient name	Result
acetone	**Rabbit - Skin - Mild irritant** Duration of treatment/exposure: 24 hours Amount/concentration applied: 500 mg **Rabbit - Skin - Mild irritant** Amount/concentration applied: 395 mg
xylene	**Rat - Skin - Mild irritant**

SECTION 11: Toxicological information

	Duration of treatment/exposure: 8 hours Amount/concentration applied: 60 uL **Rabbit - Skin - Moderate irritant** Duration of treatment/exposure: 24 hours Amount/concentration applied: 500 mg **Rabbit - Skin - Moderate irritant** Amount/concentration applied: 100 %
Zinc powder - zinc dust (stabilized)	**Human - Skin - Mild irritant** Duration of treatment/exposure: 72 hours Amount/concentration applied: 300 ug I

Conclusion/Summary [Product] : Not available.

Serious eye damage/eye irritation

Product/ingredient name	Result
acetone	**Human - Eyes - Mild irritant** Amount/concentration applied: 186300 ppm **Rabbit - Eyes - Mild irritant** Amount/concentration applied: 10 uL **Rabbit - Eyes - Moderate irritant** Duration of treatment/exposure: 24 hours Amount/concentration applied: 20 mg **Rabbit - Eyes - Severe irritant** Amount/concentration applied: 20 mg
xylene	**Rabbit - Eyes - Mild irritant** Amount/concentration applied: 87 mg **Rabbit - Eyes - Severe irritant** Duration of treatment/exposure: 24 hours Amount/concentration applied: 5 mg

Conclusion/Summary [Product] : Not available.

Respiratory corrosion/irritation

Not available.

Conclusion/Summary [Product] : Not available.

Respiratory or skin sensitization

Not available.

Skin

Conclusion/Summary [Product] : Not available.

Respiratory

Conclusion/Summary [Product] : Not available.

Germ cell mutagenicity

Not available.

SECTION 11: Toxicological information

Conclusion/Summary [Product] : Not available.

Carcinogenicity

Not available.

Conclusion/Summary [Product] : Not available.

Reproductive toxicity

Not available.

Conclusion/Summary [Product] : Not available.

Specific target organ toxicity (single exposure)

Product/ingredient name	Result
acetone	STOT SE 3, H336 (Narcotic effects)
ethyl acetate	STOT SE 3, H336 (Narcotic effects)
xylene	STOT SE 3, H335 (Respiratory tract irritation)
Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics,<2% aromatics	STOT SE 3, H336 (Narcotic effects)

Specific target organ toxicity (repeated exposure)

Product/ingredient name	Result
xylene	STOT RE 2, H373

Aspiration hazard

Product/ingredient name	Result
xylene	ASPIRATION HAZARD - Category 1
Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics,<2% aromatics	ASPIRATION HAZARD - Category 1
Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics	ASPIRATION HAZARD - Category 1

Information on the likely routes of exposure

Not available.

Potential acute health effects

Eye contact : Causes serious eye irritation.

Inhalation : Can cause central nervous system (CNS) depression. May cause drowsiness or dizziness.

Skin contact : Defatting to the skin. May cause skin dryness and irritation.

Ingestion : Can cause central nervous system (CNS) depression.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain or irritation
watering
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
nausea or vomiting
headache
drowsiness/fatigue
dizziness/vertigo
unconsciousness

SECTION 11: Toxicological information

Skin contact : Adverse symptoms may include the following:
irritation
dryness
cracking

Ingestion : No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

Conclusion/Summary [Product] : Not available.

General : Prolonged or repeated contact can defat the skin and lead to irritation, cracking and/or dermatitis.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Reproductive toxicity : No known significant effects or critical hazards.

11.2 Information on other hazards

11.2.1 Endocrine disrupting properties

Not available.

Conclusion/Summary [Product] : The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

11.2.2 Other information

Not available.

SECTION 12: Ecological information

12.1 Toxicity

Product/ingredient name	Result
acetone	**Acute - LC50 - Fresh water** Daphnia - Water flea - *Daphnia magna* 10 mg/l [48 hours] Effect: Mortality **Acute - LC50 - Fresh water** Daphnia - Water flea - *Daphnia pulex* Age: <24 hours 8800 mg/l [48 hours] Effect: Mortality **Acute - LC50 - Fresh water** Daphnia - Water flea - *Daphnia cucullata* Age: 11 days 7460 mg/l [48 hours] Effect: Mortality **Acute - LC50 - Fresh water** Daphnia - Water flea - *Daphnia cucullata* Age: 11 days

SECTION 12: Ecological information

7810 mg/l [48 hours]
Effect: Mortality

Acute - LC50 - Fresh water
Crustaceans - Aquatic sowbug - *Asellus aquaticus*
7550 mg/l [48 hours]
Effect: Mortality

Acute - LC50 - Fresh water
Crustaceans - Scud - *Gammarus pulex*
6000 mg/l [48 hours]
Effect: Mortality

Acute - LC50 - Fresh water
Fish - Fathead minnow - *Pimephales promelas*
Age: 28 days; Size: 19.2 mm; Weight: 0.076 g
7280 mg/l [96 hours]
Effect: Mortality

Acute - LC50 - Fresh water
Fish - Fathead minnow - *Pimephales promelas*
Age: 33 days; Size: 22.6 mm; Weight: 0.159 g
8120 mg/l [96 hours]
Effect: Mortality

Acute - LC50 - Fresh water
Fish - Fathead minnow - *Pimephales promelas*
Age: 32 days; Size: 18 mm; Weight: 0.087 g
6210 mg/l [96 hours]
Effect: Mortality

Acute - LC50 - Fresh water
Crustaceans - Water flea - *Ceriodaphnia dubia* - Neonate
Age: <12 hours
8098 mg/l [48 hours]
Effect: Mortality

Acute - EC50 - Fresh water
Algae - Green algae - *Selenastrum sp.*
7200 mg/l [96 hours]
Effect: Population

Chronic - NOEC - Marine water
Algae - Green algae - *Ulva pertusa*
4.95 mg/l [96 hours]
Effect: Reproduction

Acute - EC50 - Marine water
Algae - Green algae - *Ulva pertusa*
20.565 mg/l [96 hours]
Effect: Reproduction

Chronic - NOEC - Marine water
Algae - Diatom - *Skeletonema costatum*
100 µl/l [72 hours]
Effect: Population

Chronic - NOEC - Marine water
Algae - Diatom - *Skeletonema costatum*
100 µl/l [96 hours]
Effect: Population

SECTION 12: Ecological information

Chronic - NOEC - Marine water
Algae - Dinoflagellate - *Karenia brevis*
0.5 ml/l [96 hours]
Effect: Population

Acute - LC50 - Marine water
ISO
Crustaceans - Calanoid copepod - *Acartia tonsa* - Copepodid
4.42589 ml/l [48 hours]
Effect: Mortality

Acute - LC50 - Fresh water
Crustaceans - Scud - *Gammarus pulex* - Juvenile (Fledgling, Hatchling, Weanling)
Size: 5 to 10 mm
11.26487 ml/l [48 hours]
Effect: Mortality

Acute - LC50 - Fresh water
Fish - Rainbow trout,donaldson trout - *Oncorhynchus mykiss*
Age: 4 to 12 months; Size: 2 to 10 cm; Weight: 0.5 to 14 g
8000 ppm [96 hours]
Effect: Mortality

Acute - LC50 - Fresh water
Fish - Guppy - *Poecilia reticulata*
Age: 4 to 12 months; Size: 2 to 10 cm; Weight: 0.5 to 14 g
5600 ppm [96 hours]
Effect: Mortality

Chronic - NOEC - Fresh water
Crustaceans - Daphnia - *Daphniidae*
0.016 ml/l [21 days]
Effect: Population

Chronic - NOEC - Marine water
Fish - Threespine stickleback - *Gasterosteus aculeatus* - Larvae
Age: 7 days
5 µg/l [42 days]
Effect: Growth

ethyl acetate

Acute - LC50 - Fresh water
Daphnia - Water flea - *Daphnia cucullata*
Age: 11 days
154 mg/l [48 hours]
Effect: Mortality

Acute - LC50 - Fresh water
Fish - Indian catfish - *Heteropneustes fossilis*
Size: 14.16 cm; Weight: 25.54 g
212.5 mg/l [96 hours]
Effect: Mortality

Acute - EC50 - Fresh water
Algae - Green algae - *Selenastrum sp.*
2500 mg/l [96 hours]
Effect: Population

Chronic - NOEC - Fresh water
Fish - Fathead minnow - *Pimephales promelas* - Embryo
Age: <24 hours

SECTION 12: Ecological information

	75.6 mg/l [32 days] Effect: Mortality **Chronic - NOEC - Fresh water** Daphnia - Water flea - *Daphnia magna* Age: ≤24 hours 2.4 mg/l [21 days] Effect: Mortality
xylene	**Acute - LC50 - Marine water** Crustaceans - Daggerblade grass shrimp - *Palaemon pugio* 8500 µg/l [48 hours] Effect: Mortality **Acute - LC50 - Fresh water** Fish - Fathead minnow - *Pimephales promelas* Age: 31 days; Size: 18.4 mm; Weight: 0.077 g 13.4 mg/l [96 hours] Effect: Mortality **Acute - LC50 - Fresh water** Fish - Goldfish - *Carassius auratus* Age: 1 to 1.5 years; Size: 13 to 20 cm; Weight: 20 to 80 g 16.94 mg/l [96 hours] Effect: Mortality **Acute - LC50 - Fresh water** Fish - Bluegill - *Lepomis macrochirus* - Juvenile (Fledgling, Hatchling, Weanling) Size: 3.65 cm; Weight: 0.9 g 15.7 mg/l [96 hours] Effect: Mortality **Acute - LC50 - Fresh water** Fish - Bluegill - *Lepomis macrochirus* Size: 3.8 to 6.4 cm; Weight: 1 to 2 g 20.87 mg/l [96 hours] Effect: Mortality **Acute - LC50 - Fresh water** Fish - Bluegill - *Lepomis macrochirus* Weight: 0.8 g 19 mg/l [96 hours] Effect: Mortality **Acute - LC50 - Marine water** Crustaceans - Daggerblade grass shrimp - *Palaemon pugio* - Adult 8.5 ppm [48 hours] Effect: Mortality **Acute - EC50 - Fresh water** Crustaceans - Ostracod - *Cypris subglobosa* 90 mg/l [48 hours] Effect: Intoxication
Aluminium powder (stabilized)	**Chronic - NOEC - Fresh water** Aquatic plants - Coontail - *Ceratophyllum demersum* Weight: 3.5 g 9 mg/l [3 days] Effect: Enzymes

SECTION 12: Ecological information

Zinc powder - zinc dust (stabilized)

Chronic - NOEC - Fresh water
Fish - common carp - *Cyprinus carpio*
Age: 13 months; Size: 10.5 cm; Weight: 27.8 g
2.6 µg/l [4 weeks]
Effect: Accumulation

Acute - LC50 - Marine water
Fish - Mudskipper - *Periophthalmus waltoni* - Adult
12.21 µg/l [96 hours]
Effect: Mortality

Acute - EC50
Algae - Green algae - *Raphidocelis subcapitata*
0.005 mg/l [72 hours]
Effect: Population

Chronic - EC10
OECD
Daphnia - Water flea - *Daphnia magna* - Neonate
Age: <24 hours
6.3 µg/l [21 days]
Effect: Reproduction

Acute - EC50 - Fresh water
US EPA
Crustaceans - Water flea - *Ceriodaphnia dubia* - Neonate
Age: <24 hours
34 µg/l [48 hours]
Effect: Intoxication

Chronic - EC10 - Fresh water
OECD
Algae - Green algae - *Raphidocelis subcapitata* - Exponential growth phase
27.3 µg/l [72 hours]
Effect: Population

Conclusion/Summary [Product] : Not available.

12.2 Persistence and degradability

Not available.

Conclusion/Summary [Product] : Not available.

12.3 Bioaccumulative potential

Product/ingredient name	$LogP_{ow}$	BCF	Potential
butane	1.09	-	Low
propane	1.09	-	Low
acetone	-0.23	-	Low
ethyl acetate	0.68	30	Low
xylene	3.12	8.1 to 25.9	Low

12.4 Mobility in soil

Soil/Water partition coefficient

SECTION 12: Ecological information

Product/ingredient name	logKoc	Koc
butane	1.4	22.8012
propane	0.94	8.6207
acetone	0.56	3.6548
ethyl acetate	1.3	18.1744

Results of PMT and vPvM assessment

Product/ingredient name	PMT	P	M	T	vPvM	vP	vM
butane	No	No	No	No	No	No	No
propane	No	No	No	No	No	No	No
acetone	No	No	No	No	No	No	No
ethyl acetate	No	No	No	No	No	No	No
xylene	N/A	N/A	N/A	Yes	N/A	N/A	N/A
Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics, <2% aromatics	No	No	No	No	No	No	No
Aluminium powder (stabilized)	No	No	No	No	No	No	No
Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics	No	No	No	No	No	No	No
Zinc powder - zinc dust (stabilized)	No	No	No	No	No	No	No

Mobility : Not available.

Conclusion/Summary : The product does not meet the criteria to be considered as a PMT or vPvM.

12.5 Results of PBT and vPvB assessment

Regulation (EC) No. 1907/2006 [REACH]

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
butane	No	N/A	N/A	No	N/A	N/A	N/A
propane	No	N/A	N/A	No	N/A	N/A	N/A
acetone	N/A	N/A	N/A	Yes	N/A	N/A	N/A
ethyl acetate	No	N/A	No	No	No	N/A	No
xylene	No	N/A	No	Yes	No	N/A	No
Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics, <2% aromatics	No	N/A	N/A	No	N/A	N/A	N/A
Aluminium powder (stabilized)	No	No	No	No	No	No	No
Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, < 2% aromatics	No	N/A	N/A	No	N/A	N/A	N/A
Zinc powder - zinc dust (stabilized)	No	No	No	No	No	No	No

Regulation (EC) No. 1272/2008 [CLP]

Product/ingredient name	PBT	P	B	T	vPvB	vP	vB
butane	No	No	No	No	No	No	No
propane	No	No	No	No	No	No	No
acetone	No	No	No	No	No	No	No
ethyl acetate	No	No	No	No	No	No	No
xylene	No	N/A	No	Yes	No	N/A	No
Hydrocarbons, C9-C11, n-alkanes, isoalkanes, cyclics, <2% aromatics	No	No	No	No	No	No	No
Aluminium powder (stabilized)	No	No	No	No	No	No	No
Hydrocarbons, C10-C13, n-	No	No	No	No	No	No	No

SECTION 12: Ecological information

alkanes, isoalkanes, cyclics, < 2% aromatics Zinc powder - zinc dust (stabilized)	No	No	No	No	No	No	No

Conclusion/Summary Regulation (EC) No. 1272/2008 [CLP] : The product does not meet the criteria to be considered as a PBT or vPvB.

12.6 Endocrine disrupting properties

Not available.

Conclusion/Summary [Product] : The product does not meet the criteria to be considered as having endocrine disrupting properties according to the criteria set out in either Regulation (EC) No. 1907/2006 or Regulation (EC) No 1272/2008.

12.7 Other adverse effects

No known significant effects or critical hazards.

SECTION 13: Disposal considerations

The information in this section contains generic advice and guidance. The list of Identified Uses in Section 1 should be consulted for any available use-specific information provided in the Exposure Scenario(s).

13.1 Waste treatment methods

Product

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction.

Hazardous waste : Yes.

European waste catalogue (EWC)

Waste code	Waste designation
16 05 04*	gases in pressure containers (including halons) containing hazardous substances

Packaging

Methods of disposal : The generation of waste should be avoided or minimized wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.

Type of packaging	European waste catalogue (EWC)	
Can	15 01 10*	packaging containing residues of or contaminated by hazardous substances

Special precautions : This material and its container must be disposed of in a safe way. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

SECTION 14: Transport information

SECTION 14: Transport information

	ADR/RID	ADN	IMDG	IATA
14.1 UN number or ID number	UN1950	UN1950	UN1950	UN1950
14.2 UN proper shipping name	AEROSOLS (butane, propane)	AEROSOLS (butane, propane)	AEROSOLS (butane, propane)	Aerosols, flammable (butane, propane)
14.3 Transport hazard class(es)	2 	2 	2.1 	2.1 
14.4 Packing group	-	-	-	-
14.5 Environmental hazards	Yes.	No.	Yes.	No.

Additional information

ADR/RID : The environmentally hazardous substance mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Limited quantity 1 L
Special provisions 190, 327, 625, 344
Tunnel code (D)
ADR Classification Code: 5F

ADN : **Special provisions** 190, 327, 625, 344

IMDG : The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg.
Emergency schedules F-D, S-U
Special provisions 63, 190, 277, 327, 344, 381, 959

IATA : The environmentally hazardous substance mark may appear if required by other transportation regulations.
Quantity limitation Passenger and Cargo Aircraft: 75 kg. Packaging instructions: 203. Cargo Aircraft Only: 150 kg. Packaging instructions: 203. Limited Quantities - Passenger Aircraft: 30 kg. Packaging instructions: Y203.
Special provisions A145, A167, A802

14.6 Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

14.7 Maritime transport in bulk according to IMO instruments : Not available.

SECTION 15: Regulatory information

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

EU Regulation (EC) No. 1907/2006 (REACH)

Annex XIV - List of substances subject to authorization

Annex XIV

None of the components are listed above the relevant limit.

Substances of very high concern

None of the components are listed above the relevant limit.

Annex XVII - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles

SECTION 15: Regulatory information

Product/ingredient name	%	Designation [Usage]
propane	≥10 - ≤25	40

Labeling : Not applicable.

Synthetic polymer microparticles - Designation 78

Generic identity of polymer(s) : Not applicable.

Total percentage of synthetic polymer microparticles : Not applicable.

Other EU regulations

Industrial emissions (integrated pollution prevention and control) - Air : Listed

Industrial emissions (integrated pollution prevention and control) - Water : Listed

Explosive precursors : This product is regulated by Regulation (EU) 2019/1148. All suspicious transactions, and significant disappearances and thefts should be reported to the relevant national contact point.

Ozone depleting substances (EU 2024/590)

Not listed.

Prior Informed Consent (PIC) (649/2012/EU)

Not listed.

Persistent Organic Pollutants

Not listed.

Aerosol dispensers :

3

Extremely flammable

Seveso Directive

This product is controlled under the Seveso Directive.

Danger criteria

Category
P3a

VOC content : 87.1 %

VOC (g/L) : 622.8

National regulations

SECTION 15: Regulatory information

Product/ingredient name	List name	Name on list	Classification	Notes
butane	DFG MAC-values list	Butane	Develop D	-
propane	DFG MAC-values list	-	Develop D	-
acetone	DFG MAC-values list	-	Develop B	-
ethyl acetate	DFG MAC-values list	-	Develop C	-
xylene	DFG MAC-values list	Xylene	Develop D	-
aluminium powder (stabilised)	DFG MAC-values list	Aluminium compounds, soluble (non-irritating)	Develop C	-
	DFG MAC-values list	Aluminium compounds, soluble (irritating)	Develop C	
	DFG MAC-values list	Aluminium and its poorly soluble compounds	Carc 4, Develop D	
zinc powder zinc dust (stabilised)	DFG MAC-values list	Zinc and its inorganic compounds	Develop C	-

Storage class (TRGS 510) : 2B

Hazardous incident ordinance

This product is controlled under the Germany Hazardous Incident Ordinance.

Danger criteria

Category	Reference number
P3a	1.2.3.1

Hazard class for water : 2

Technical instruction on air quality control (TA Luft)

Number [Class]	Description	%
5.2.1	Total dust	5.5
5.2.2 [III]	Dusty inorganic substances	1.8
5.2.5	Organic substances	91.5
5.2.5 [I]	Organic substances	80.5

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : Not determined.

Canada : Not determined.

China : Not determined.

Eurasian Economic Union : **Russian Federation inventory**: Not determined.

Japan : **Japan inventory (CSCL)**: Not determined.
Japan inventory (ISHL): Not determined.

New Zealand : Not determined.

SECTION 15: Regulatory information

Philippines : Not determined.

Republic of Korea : Not determined.

Taiwan : Not determined.

Thailand : Not determined.

Turkey : Not determined.

United States : Not determined.

Viet Nam : Not determined.

15.2 Chemical Safety Assessment : Complete.

SECTION 16: Other information

Indicates information that has changed from previously issued version.

Abbreviations and acronyms : ADN = European Provisions concerning the International Carriage of Dangerous Goods by Inland Waterway
ADR = The European Agreement concerning the International Carriage of Dangerous Goods by Road
ATE = Acute Toxicity Estimate
B = Bioaccumulative
BCF = Bioconcentration Factor
CLP = Classification, Labelling and Packaging Regulation [Regulation (EC) No. 1272/2008]
DMEL = Derived Minimal Effect Level
DNEL = Derived No Effect Level
EUH statement = CLP-specific Hazard statement
IATA = International Air Transport Association
IMDG = International Maritime Dangerous Goods
IMO = International Maritime Organization
M = Mobile
N/A = Not available
P = Persistent
PBT = Persistent, Bioaccumulative and Toxic
PMT = Persistent, Mobile and Toxic
PNEC = Predicted No Effect Concentration
RID = The Regulations concerning the International Carriage of Dangerous Goods by Rail
RRN = REACH Registration Number
SGG = Segregation Group
T = Toxic
vB = Very Bioaccumulative
vM = Very Mobile
vP = Very Persistent
vPvB = Very Persistent and Very Bioaccumulative
vPvM = Very Persistent and Very Mobile

Procedure used to derive the classification according to Regulation (EC) No. 1272/2008 [CLP/GHS]

Classification	Justification
Aerosol 1, H222, H229	On basis of test data
Eye Irrit. 2, H319	Calculation method
STOT SE 3, H336	Calculation method
Aquatic Chronic 3, H412	Calculation method

Full text of abbreviated H statements

SECTION 16: Other information

H220	Extremely flammable gas.
H222, H229	Extremely flammable aerosol. Pressurized container: may burst if heated.
H225	Highly flammable liquid and vapor.
H226	Flammable liquid and vapor.
H228	Flammable solid.
H261	In contact with water releases flammable gas.
H280	Contains gas under pressure; may explode if heated.
H304	May be fatal if swallowed and enters airways.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H373	May cause damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.
H410	Very toxic to aquatic life with long lasting effects.
H412	Harmful to aquatic life with long lasting effects.
EUH066	Repeated exposure may cause skin dryness or cracking.

Full text of classifications [CLP/GHS]

Acute Tox. 4	ACUTE TOXICITY - Category 4
Aerosol 1	AEROSOLS - Category 1
Aquatic Acute 1	AQUATIC HAZARD (ACUTE) - Category 1
Aquatic Chronic 1	AQUATIC HAZARD (LONG-TERM) - Category 1
Aquatic Chronic 3	AQUATIC HAZARD (LONG-TERM) - Category 3
Asp. Tox. 1	ASPIRATION HAZARD - Category 1
Eye Irrit. 2	SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 2
Flam. Gas 1A	FLAMMABLE GASES - Category 1A
Flam. Liq. 2	FLAMMABLE LIQUIDS - Category 2
Flam. Liq. 3	FLAMMABLE LIQUIDS - Category 3
Flam. Sol. 1	FLAMMABLE SOLIDS - Category 1
Press. Gas (Comp.)	GASES UNDER PRESSURE - Compressed gas
Skin Irrit. 2	SKIN CORROSION/IRRITATION - Category 2
STOT RE 2	SPECIFIC TARGET ORGAN TOXICITY (REPEATED EXPOSURE) - Category 2
STOT SE 3	SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) - Category 3
Water-react. 2	SUBSTANCES AND MIXTURES, WHICH IN CONTACT WITH WATER, EMIT FLAMMABLE GASES - Category 2

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