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

1.1. Product identifier

Product form : Mixture
Trade name/designation : MRE Flameless Food Heater
Product code : TV.MAM.0.1.25

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

1.2.1. Relevant identified uses

Intended for general public

Main use category : Professional uses, Industrial use, Consumer use Use of the
substance/mixture : heating

1.2.2. Uses advised against

No data available

1.3. Details of the supplier of the safety data sheet

Tactical Solution OÜ
Farmi tee 18, Viiratsi
Estonia 70101

1.4. Emergency telephone number

Country	Official advisory body	Address	Emergency number
Ireland	National Poisons Information Centre Beaumont Hospital	Beaumont Hospital Beaumont Road 9 Dublin	+353 1 809 21 66 (public, 8am - 10pm, 7/7) +353 01 809 2566 (Professionals, 24/7)
United Kingdom	National Poisons Information Service (Newcastle Centre) Regional Drugs and Therapeutics Centre, Wolfson Unit	Claremont Place Newcastle-upon-Tyne NE1 4LP Newcastle	0844 892 0111 (UK only, Monday to Friday, 08.00 to 18.00 hours, healthcare professionals only)

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Flam. Sol. 1 H228

Water-react. 2 H261

Skin Corr.1B H314

STOT SE 3 H335

Full text of hazard classes and H-statements : see section 16

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2.2. Label elements

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

Hazard pictograms :



GHS02

GHS05

GHS07

Signal word :

Danger

Hazardous ingredients :

Calcium oxide; sodium hydroxide, caustic soda

Hazard statements :

H228 - Flammable solid
H261 - In contact with water releases flammable gases
H314 - Causes severe skin burns and eye damage
H335 - May cause respiratory irritation

Precautionary statements :

P210 - Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking
P280 - Wear eye protection, protective clothing, face protection, Protective gloves
P301+P330+P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P303+P361+P353 - IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

Other hazards :

The study does not need to be conducted because the substance is inorganic.

SECTION 3: Composition/information on ingredients

3.1. Substance

Not applicable

3.2. Mixture

Substance name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Calcium oxide	(CAS No.) 1305-78-8 (EC No) 215-138-9 (EC Index) -	20 - 40	Skin Irrit. 2, H315 Eye Dam. 1, H318 STOT SE 3, H335
Aluminium powder (stabilized) substance with national workplace exposure limit(s) (AT, BE, BG, CZ, DK, ES, FR, GB, GR, HU, IE, IT, LT, LV, PL, PT, RO, SE, SK)	(CAS No.) 7429-90-5 (EC No) 231-072-3 (EC Index) 013-002-00-1	20 - 40	Flam. Sol. 1, H228 Water-react. 2, H261

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Calcium carbonate substance with national workplace exposure limit(s) (BG, FR, LV, PL, PT)	(CAS No.) 471-34-1 (EC No) 207-439-9	10 - 30	Not classified
Sodium carbonate	(CAS No.) 497-19-8 (EC No) 207-838-8 (EC Index) 011-005-00-2	10 - 30	Eye Irrit. 2, H319
sodium hydroxide, caustic soda	(CAS No.) 1310-73-2 (EC No) 215-185-5 (EC Index) 011-002-00-6	1 - 5	Skin Corr. 1A, H314

Specific concentration limits:

Substance name	Product identifier	Specific concentration limits
sodium hydroxide, caustic soda	(CAS No.) 1310-73-2 (EC No) 215-185-5 (EC Index) 011-002-00-6	(0,5 =<C < 2) Eye Irrit. 2, H319 (0,5 =<C < 2) Skin Irrit. 2, H315 (2 =<C < 5) Skin Corr. 1B, H314 (C >= 5) Skin Corr. 1A, H314

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

Additional advice	: First aider: Pay attention to self-protection. Concerning personal protective equipment to use, see section 8. Never give anything by mouth to an unconscious person or a person with cramps. In case of doubt or persistent symptoms, consult always a physician. Show this safety data sheet to the doctor in attendance. Treat symptomatically.
Inhalation	: Remove person to fresh air and keep comfortable for breathing. If breathing is irregular or stopped, administer artificial respiration. Get immediate medical advice/attention.
Skin contact	: Take off immediately all contaminated clothing. After contact with skin, wash immediately with plenty of water. Get immediate medical advice/attention. In case of doubt or persistent symptoms, consult always a physician.
Eye contact	: Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. Continue rinsing. Get immediate medical advice/attention.
In case of ingestion	: Rinse mouth thoroughly with water. Get immediate medical advice/attention.

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

Inhalation	: May cause respiratory irritation. The following symptoms may occur: Inhalation of dust may cause irritation of the respiratory system.
Skin contact	: Causes severe burns. The following symptoms may occur: Contact with dust may cause mechanical irritation or drying of the skin.
Eye contact	: Causes serious eye damage. The following symptoms may occur: Dust contact with the eyes can lead to mechanical irritation.
Ingestion	: The following symptoms may occur: Causes severe burns.

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

No data available

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SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : carbon dioxide (CO₂), powder, alcohol-resistant foam, hazy water. Unsuitable extinguishing media : Strong water jet.

5.2. Special hazards arising from the substance or mixture

Specific hazards : Not flammable. Flammable solid. Danger of dust explosion.

5.3. Advice for firefighters

Firefighting instructions : Evacuate area. Use water spray or fog for cooling exposed containers. Contain the extinguishing fluids by bunding. Prevent fire-fighting water from entering environment. Avoid dust formation. Knock down dust with water spray jet.

Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus.

Other information : Do not allow run-off from fire-fighting to enter drains or water courses. Dispose of waste in accordance with environmental legislation.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

For non-emergency personnel : Evacuate unnecessary personnel. Keep upwind. Provide adequate ventilation. Wear recommended personal protective equipment. Concerning personal protective equipment to use, see section 8. Do not breathe dust. Avoid contact with skin, eyes and clothing. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ensure equipment is adequately grounded. Use explosion-proof equipment. Use only non-sparking tools.

6.1.2. For emergency responders

For emergency responders : Ensure procedures and training for emergency decontamination and disposal are in place. Concerning personal protective equipment to use, see section 8.

6.2. Environmental precautions

Do not allow to enter into surface water or drains. Notify authorities if product enters sewers or public waters.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up : Stop leak if safe to do so. Dam up the solid spill. Take up mechanically (sweeping, shovelling) and collect in suitable container for disposal. Large spills: scoop solid spill into closing containers. This material and its container must be disposed of in a safe way, and as per local legislation. Avoid dust formation. Knock down dust with water spray jet.

6.4. Reference to other sections

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Concerning personal protective equipment to use, see section 8. Disposal: see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling

: Provide adequate ventilation. Use personal protective equipment as required. Concerning personal protective equipment to use, see section 8. Do not breathe dust. Avoid contact with skin, eyes and clothing. Take any precaution to avoid mixing with Incompatible materials, Refer to Section 10 on Incompatible Materials. Ensure proper process control to avoid excess waste discharge (temperature, concentration, pH, time). Avoid release to the environment. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use explosion-proof equipment. Use only non-sparking tools. Avoid dust formation.

Hygiene measures

: Keep good industrial hygiene. Wash hands and other exposed areas with mild soap and water before eating, drinking or smoking and when leaving work. Do not eat, drink or smoke when using this product. Keep away from food, drink and animal feedingstuffs. Remove contaminated clothes. Separate working clothes from town clothes. Launder separately. Wash contaminated clothing before reuse.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions

: Store in a dry, cool and well-ventilated place. Do not store near or with any of the incompatible materials listed in section 10.

Special rules on packaging

: Child-resistant fastenings (EN/862/ISO 8317). Tactile warning according to EN/ISO 11683.

Packaging materials

: Keep only in the original container.

7.3. Specific end use(s)

No data available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Calcium oxide (1305-78-8)		
Austria	MAK (mg/m ³)	2 mg/m ³ (inhalable fraction)
Austria	MAK Short time value (mg/m ³)	4 mg/m ³ (inhalable fraction)
Belgium	Limit value (mg/m ³)	2 mg/m ³
Bulgaria	OEL TWA (mg/m ³)	5,0 mg/m ³
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	2 mg/m ³
Czech Republic	Expoziční limity (PEL) (mg/m ³)	2 mg/m ³
Denmark	Grænseværdie (langvarig) (mg/m ³)	2 mg/m ³
Estonia	OEL TWA (mg/m ³)	2 mg/m ³
Estonia	OEL STEL (mg/m ³)	5 mg/m ³

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Finland	HTP-arvo (8h) (mg/m ³)	2 mg/m ³
France	VME (mg/m ³)	2 mg/m ³
Germany	TRGS 900 Occupational exposure limit value (mg/m ³)	1 mg/m ³ (The risk of damage to the embryo or fetus can be excluded when AGW and BGW values are observed. Substance causing local effects-inhalable fraction)

Calcium oxide (1305-78-8)		
Greece	OEL TWA (mg/m ³)	5 mg/m ³
Hungary	AK-érték	5 mg/m ³
Hungary	CK-érték	5 mg/m ³
Ireland	OEL (8 hours ref) (mg/m ³)	2 mg/m ³
Ireland	OEL (15 min ref) (mg/m ³)	6 mg/m ³ (calculated)
Latvia	OEL TWA (mg/m ³)	5 mg/m ³
Lithuania	IPRV (mg/m ³)	2 mg/m ³
Lithuania	TPRV (mg/m ³)	5 mg/m ³
Poland	NDS (mg/m ³)	2 mg/m ³ (inhalable fraction) 1 mg/m ³ (respirable fraction)
Poland	NDSch (mg/m ³)	6 mg/m ³ (inhalable fraction) 4 mg/m ³ (respirable fraction)
Portugal	OEL TWA (mg/m ³)	2 mg/m ³
Romania	OEL TWA (mg/m ³)	2 mg/m ³
Romania	OEL STEL (mg/m ³)	5 mg/m ³
Slovakia	NPHV (priemerná) (mg/m ³)	5 mg/m ³ (total aerosol)
Slovenia	OEL TWA (mg/m ³)	5 mg/m ³ (inhalable fraction)
Slovenia	OEL STEL (mg/m ³)	5 mg/m ³ (inhalable fraction)
Spain	VLA-ED (mg/m ³)	2 mg/m ³
Sweden	nivågränsvärde (NVG) (mg/m ³)	1 mg/m ³ (inhalable dust)
Sweden	kortidsvärde (KTV) (mg/m ³)	2,5 mg/m ³ (inhalable dust)
United Kingdom	WEL TWA (mg/m ³)	2 mg/m ³
United Kingdom	WEL STEL (mg/m ³)	6 mg/m ³ (calculated)
Norway	Grenseverdier (Takverdi) (mg/m ³)	2 mg/m ³
Switzerland	VME (mg/m ³)	2 mg/m ³ (inhalable dust)
Switzerland	VLE (mg/m ³)	2 mg/m ³ (inhalable dust)
Australia	TWA (mg/m ³)	2 mg/m ³
Canada (Quebec)	VEMP (mg/m ³)	2 mg/m ³
USA - ACGIH	ACGIH TWA (mg/m ³)	2 mg/m ³
USA - IDLH	US IDLH (mg/m ³)	25 mg/m ³

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USA - NIOSH	NIOSH REL (TWA) (mg/m ³)	2 mg/m ³
USA - OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m ³
Calcium carbonate (471-34-1)		
Bulgaria	OEL TWA (mg/m ³)	10,0 mg/m ³
France	VME (mg/m ³)	10 mg/m ³
Latvia	OEL TWA (mg/m ³)	6 mg/m ³
Poland	NDS (mg/m ³)	10 mg/m ³ (<2% free crystalline silica-inhalable fraction)
Portugal	OEL TWA (mg/m ³)	10 mg/m ³ (particulate matter containing no Asbestos and <1% Crystalline silica)
Switzerland	VME (mg/m ³)	3 mg/m ³ (respirable dust)
Australia	TWA (mg/m ³)	10 mg/m ³ (containing no asbestos and <1% crystalline silica-inhalable dust)
Canada (Quebec)	VEMP (mg/m ³)	10 mg/m ³ (total dust)
Calcium carbonate (471-34-1)		
USA - NIOSH	NIOSH REL (TWA) (mg/m ³)	10 mg/m ³ (total dust) 5 mg/m ³ (respirable dust)

Sodium carbonate (497-19-8)		
Czech Republic	Expoziční limity (PEL) (mg/m ³)	5 mg/m ³
Romania	OEL TWA (mg/m ³)	1 mg/m ³
Romania	OEL STEL (mg/m ³)	3 mg/m ³

Aluminium powder (stabilized) (7429-90-5)		
Austria	MAK (mg/m ³)	10 mg/m ³ (inhalable fraction)
Austria	MAK Short time value (mg/m ³)	20 mg/m ³ (inhalable fraction)
Belgium	Limit value (mg/m ³)	1 mg/m ³
Bulgaria	OEL TWA (mg/m ³)	10,0 mg/m ³ (metal dust) 1,5 mg/m ³ (respirable fraction)
Croatia	GVI (granična vrijednost izloženosti) (mg/m ³)	10 mg/m ³ (total dust) 4 mg/m ³ (respirable dust)
Czech Republic	Expoziční limity (PEL) (mg/m ³)	10,0 mg/m ³ (dust)
Denmark	Grænseværdie (langvarig) (mg/m ³)	5 mg/m ³ (dust, fume and powder, total) 2 mg/m ³ (dust and powder, respirable)
Estonia	OEL TWA (mg/m ³)	10 mg/m ³ (total dust) 4 mg/m ³ (respirable dust)
France	VME (mg/m ³)	10 mg/m ³ (metal) 5 mg/m ³ (dust)
Greece	OEL TWA (mg/m ³)	10 mg/m ³ (inhalable fraction) 5 mg/m ³ (respirable fraction)

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Hungary	AK-érték	6 mg/m ³ (respirable dust)
Ireland	OEL (8 hours ref) (mg/m ³)	1 mg/m ³ (respirable dust)
Ireland	OEL (15 min ref) (mg/m ³)	3 mg/m ³ (calculated-respirable dust)
Latvia	OEL TWA (mg/m ³)	2 mg/m ³
Lithuania	IPRV (mg/m ³)	5 mg/m ³ (inhalable fraction) 2 mg/m ³ (respirable fraction) 1 mg/m ³
Poland	NDS (mg/m ³)	2,5 mg/m ³ (inhalable fraction) 1,2 mg/m ³ (respirable fraction)
Portugal	OEL TWA (mg/m ³)	10 mg/m ³ (metal dust)
Romania	OEL TWA (mg/m ³)	3 mg/m ³ (dust) 1 mg/m ³ (fume)
Romania	OEL STEL (mg/m ³)	10 mg/m ³ (powder) 3 mg/m ³ (fume)
Slovakia	NPHV (priemerná) (mg/m ³)	1,5 mg/m ³ (metal) 6 mg/m ³ (total aerosol)
Spain	VLA-ED (mg/m ³)	10 mg/m ³ (dust)
Sweden	nivågränsvärde (NVG) (mg/m ³)	5 mg/m ³ (total dust) 2 mg/m ³ (respirable dust)
United Kingdom	WEL TWA (mg/m ³)	10 mg/m ³ (inhalable dust) 4 mg/m ³ (respirable dust)
United Kingdom	WEL STEL (mg/m ³)	30 mg/m ³ (calculated-inhalable dust) 12 mg/m ³ (calculated-respirable dust)
Norway	Grenseverdier (AN) (mg/m ³)	5 mg/m ³ (pyrotechnical-powder)
Norway	Grenseverdier (Korttidsverdi) (mg/m ³)	5 mg/m ³ (pyrotechnical-powder)
Aluminium powder (stabilized) (7429-90-5)		
Switzerland	VME (mg/m ³)	3 mg/m ³ (respirable dust)
Australia	TWA (mg/m ³)	10 mg/m ³ (dust) 5 mg/m ³ (welding fume)
Canada (Quebec)	VEMP (mg/m ³)	10 mg/m ³
USA - ACGIH	ACGIH TWA (mg/m ³)	1 mg/m ³ (respirable fraction)
USA - NIOSH	NIOSH REL (TWA) (mg/m ³)	10 mg/m ³ (total dust) 5 mg/m ³ (respirable dust)
USA - OSHA	OSHA PEL (TWA) (mg/m ³)	15 mg/m ³ (total dust) 5 mg/m ³ (respirable fraction)

sodium hydroxide, caustic soda (1310-73-2)		
Austria	MAK (mg/m ³)	2 mg/m ³ (inhalable fraction)
Austria	MAK Short time value (mg/m ³)	4 mg/m ³ (inhalable fraction)

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Bulgaria	OEL TWA (mg/m ³)	2,0 mg/m ³ (alkaline aerosols)
Croatia	KGVI (kratkotrajna granična vrijednost izloženosti) (mg/m ³)	2 mg/m ³
Czech Republic	Expoziční limity (PEL) (mg/m ³)	1 mg/m ³
Denmark	Grænseværdie (ceiling) (mg/m ³)	2 mg/m ³
Estonia	OEL TWA (mg/m ³)	1 mg/m ³
Estonia	OEL Ceiling (mg/m ³)	2 mg/m ³
Finland	HTP-arvo (15 min)	2 mg/m ³
Finland	OEL Ceiling (mg/m ³)	2 mg/m ³
France	VME (mg/m ³)	2 mg/m ³
Greece	OEL TWA (mg/m ³)	2 mg/m ³
Greece	OEL STEL (mg/m ³)	2 mg/m ³
Hungary	AK-érték	2 mg/m ³
Hungary	CK-érték	2 mg/m ³
Ireland	OEL (15 min ref) (mg/m ³)	2 mg/m ³
Latvia	OEL TWA (mg/m ³)	0,5 mg/m ³
Lithuania	NRV (mg/m ³)	2 mg/m ³
Poland	NDS (mg/m ³)	0,5 mg/m ³
Poland	NDSCh (mg/m ³)	1 mg/m ³
Portugal	OEL - Ceilings (mg/m ³)	2 mg/m ³
Slovakia	NPHV (priemerná) (mg/m ³)	2 mg/m ³
Slovenia	OEL TWA (mg/m ³)	2 mg/m ³ (inhalable fraction)
Slovenia	OEL STEL (mg/m ³)	2 mg/m ³ (inhalable fraction)
Spain	VLA-EC (mg/m ³)	2 mg/m ³
Sweden	nivågränsvärde (NVG) (mg/m ³)	1 mg/m ³ (inhalable dust)
Sweden	takgränsvärde (TGV) (mg/m ³)	2 mg/m ³ (inhalable dust)
United Kingdom	WEL STEL (mg/m ³)	2 mg/m ³
Norway	Grenseverdier (Takverdi) (mg/m ³)	2 mg/m ³
Switzerland	VME (mg/m ³)	2 mg/m ³ (inhalable dust)
Switzerland	VLE (mg/m ³)	2 mg/m ³ (inhalable dust)
Canada (Quebec)	PLAFOND (mg/m ³)	2 mg/m ³
USA - ACGIH	ACGIH Ceiling (mg/m ³)	2 mg/m ³
USA - IDLH	US IDLH (mg/m ³)	10 mg/m ³
sodium hydroxide, caustic soda (1310-73-2)		
USA - NIOSH	NIOSH REL (ceiling) (mg/m ³)	2 mg/m ³
USA - OSHA	OSHA PEL (TWA) (mg/m ³)	2 mg/m ³

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Additional information	: Personal air monitoring. Room air monitoring. Recommended monitoring procedures
8.2. Exposure controls	
Engineering control measures	: Organisational measures to prevent /limit releases, dispersion and exposure. Safe handling: see section 7 . Use only at a place, which is equipped with a safety shower. Provide eye shower and label its location conspicuously. Handle substance within a closed system. Use only outdoors or in a well-ventilated area. Take precautionary measures against static discharges. Ensure equipment is adequately grounded. Apply measures to prevent dust explosions.
Personal protection equipment	: The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Hand protection	: Wear chemically resistant gloves (tested to EN374) . Suitable material: The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances
Eye protection	: Use suitable eye protection. (EN166): Eye glasses with side protection
Body protection	: Wear suitable protective clothing. Wear suitable coveralls to prevent exposure to the skin. Chemical protection clothing. Chemical resistant safety shoes
Respiratory protection	: Not required for normal conditions of use. In case of insufficient ventilation, wear suitable respiratory equipment. Effective dust mask (EN 149). Half-face mask (EN 140). Full face mask (EN 136). Filter type: P (EN 143)
Thermal hazard protection	: Not required for normal conditions of use. Use dedicated equipment.
Environmental exposure controls	: Avoid release to the environment. Comply with applicable Community environmental protection legislation.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: Powder. solid.
Colour	: Light grey.
Odour	: odourless.
Odour threshold	: Not applicable No data available
pH	: No data available
pH solution	: > 14 (@50g/L)
Relative evaporation rate (butylacetate=1)	: No data available
Melting point/freezing point	: Not applicable

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Freezing point	: Not applicable
Initial boiling point and boiling range	: ≈ 100 °C
Flash point	: Not determined
Auto-ignition temperature	: Not determined
Decomposition temperature	: No data available
Flammability (solid, gas)	: Flammable solid
Vapour pressure	: No data available
Vapour density	: No data available
Relative density	: No data available
Solubility	: Water: No data available
Partition coefficient n-octanol/water	: No data available
Kinematic viscosity	: No data available
Dynamic viscosity	: No data available
Explosive properties	: No data available
Oxidising properties	: No data available
Explosive limits	: No data available

9.2. Other information

No data available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reference to other sections: 10.4 & 10.5. Flammable solid.

10.2. Chemical stability

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Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Safe handling: see section 7. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

10.5. Incompatible materials

Oxidising substances. Safe handling: see section 7.

10.6. Hazardous decomposition products

Reference to other sections: 5.2.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity : Not classified (Based on available data, the classification criteria are not met)

Calcium oxide (1305-78-8)	
LD50/dermal/rabbit	> 2500 mg/kg (calcium hydroxide, OECD 402)

Calcium carbonate (471-34-1)	
LD50/oral/rat	6450 mg/kg
LD50/dermal/rat	> 2000 mg/kg (OECD 402)
LD50/dermal/rabbit	(OECD 404) Not applicable
LC50/inhalation/4h/rat	> 3 mg/l (OECD 403)

Sodium carbonate (497-19-8)	
LD50/oral/rat	4090 mg/kg
LC50/inhalation/4h/rat	2300 mg/m ³ (Exposure time: 2 h)
sodium hydroxide, caustic soda (1310-73-2)	
LD50/oral/rat	340 mg/kg
LD50/dermal/rabbit	1350 mg/kg

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Skin corrosion/irritation	: Causes severe skin burns and eye damage. pH: No data available
Serious eye damage/eye irritation	: Causes severe skin burns and eye damage. pH: No data available
Respiratory or skin sensitisation	: Not classified (Based on available data, the classification criteria are not met)
Germ cell mutagenicity	: Not classified (Based on available data, the classification criteria are not met)
Carcinogenicity	: Not classified (Based on available data, the classification criteria are not met)
Reproductive toxicity	: Not classified (Based on available data, the classification criteria are not met)
STOT-single exposure	: May cause respiratory irritation.
STOT-repeated exposure	: Not classified (Based on available data, the classification criteria are not met)
Aspiration hazard	: Not classified (Based on available data, the classification criteria are not met)
Other information	: Symptoms related to the physical, chemical and toxicological characteristics. For further information see section 4.

SECTION 12: Ecological information

12.1. Toxicity

Environmental properties : According to the criteria of the European classification and labelling system, the substance/the product has not to be labelled as "dangerous for the environment".

Calcium oxide (1305-78-8)	
LC50 fish 1	1070 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [static])
EC50 Daphnia 1	49,1 mg/l calcium hydroxide

Calcium carbonate (471-34-1)	
LC50 fish 1	> 200 mg/l (Poecilla latipina)
EC50 Daphnia 1	> 1000 ml/l (LC50 for Daphnia magna)
IC50, algae	>14 mg/l (72 hours, EC50 for Desmodesmus subspicatus))

Sodium carbonate (497-19-8)	
LC50 fish 1	300 mg/l (Exposure time: 96 h - Species: Lepomis macrochirus [static])
EC50 Daphnia 1	265 mg/l (Exposure time: 48 h - Species: Daphnia magna)
LC50 fish 2	310 - 1220 mg/l (Exposure time: 96 h - Species: Pimephales promelas [static])
sodium hydroxide, caustic soda (1310-73-2)	
LC50 fish 1	45,4 mg/l (Exposure time: 96 h - Species: Oncorhynchus mykiss [static])

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12.2. Persistence and degradability

MRE Flameless Food Heater	
Persistence and degradability	The study does not need to be conducted because the substance is inorganic. No data available.

12.3. Bioaccumulative potential

MRE Flameless Food Heater	
Partition coefficient n-octanol/water	No data available
Bioaccumulative potential	There is no bioaccumulation. No data available.

Calcium oxide (1305-78-8)	
BCF fish 1	(no bioaccumulation)
Calcium carbonate (471-34-1)	
BCF fish 1	(no bioaccumulation)

Sodium carbonate (497-19-8)	
BCF fish 1	(no bioaccumulation)

12.4. Mobility in soil

MRE Flameless Food Heater	
Mobility in soil	No data available

12.5. Results of PBT and vPvB assessment

MRE Flameless Food Heater	
Results of PBT assessment	No data available

12.6. Other adverse effects

Other adverse effects : No data available.

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SECTION 13: Disposal considerations

13.1. Waste treatment methods

- Waste disposal recommendations : Avoid release to the environment. Dispose of empty containers and wastes safely. Safe handling: see section 7. Refer to manufacturer/supplier for information on recovery/recycling. Recycling is preferred to disposal or incineration. If recycling is not possible, eliminate in accordance with local valid waste disposal regulations. Handle contaminated packages in the same way as the substance itself. Dispose of contaminated materials in accordance with current regulations. Packaging contaminated by the product : Do not pierce or burn, even after use. Never use pressure to empty container.
- List of proposed waste codes/waste designations in accordance with EWC (2001/573/EC, 75/442/EEC, 91/689/EEC) : This material and its container must be disposed of as hazardous waste
Waste codes should be assigned by the user, preferably in discussion with the waste disposal authorities

SECTION 14: Transport information

In accordance with ADR / RID / IMDG / IATA / ADN

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
3132	3132	3132	3132	3132
14.2. UN proper shipping name				
WATER-REACTIVE SOLID, FLAMMABLE, N.O.S. (CONTAINS ; Aluminium powder (stabilized))	WATER-REACTIVE SOLID, FLAMMABLE, N.O.S. (CONTAINS ; Aluminium powder (stabilized))	Water-reactive solid, flammable, n.o.s. (CONTAINS ; Aluminium powder (stabilized))	WATER-REACTIVE SOLID, FLAMMABLE, N.O.S. (CONTAINS ; Aluminium powder (stabilized))	WATER-REACTIVE SOLID, FLAMMABLE, N.O.S. (CONTAINS ; Aluminium powder (stabilized))
Transport document description				
UN 3132 WATERREACTIVE SOLID, FLAMMABLE, N.O.S. (CONTAINS ; Aluminium powder (stabilized)), 4.3 (4.1), II, (D/E)	UN 3132 WATERREACTIVE SOLID, FLAMMABLE, N.O.S. (CONTAINS ; Aluminium powder (stabilized)), 4.3 (4.1), II	UN 3132 Water-reactive solid, flammable, n.o.s. (CONTAINS ; Aluminium powder (stabilized)), 4.3 (4.1), II	UN 3132 WATERREACTIVE SOLID, FLAMMABLE, N.O.S. (CONTAINS ; Aluminium powder (stabilized)), 4.3 (4.1), II	UN 3132 WATERREACTIVE SOLID, FLAMMABLE, N.O.S. (CONTAINS ; Aluminium powder (stabilized)), 4.3 (4.1), II
14.3. Transport hazard class(es)				
4.3 (4.1)	4.3 (4.1)	4.3 (4.1)	4.3 (4.1)	4.3 (4.1)
				

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14.4. Packing group				
II	II	II	II	II
14.5. Environmental hazards				
Dangerous for the environment : No	Dangerous for the environment : No Marine pollutant : No	Dangerous for the environment : No	Dangerous for the environment : No	Dangerous for the environment : No
No supplementary information available				

14.6. Special precautions for user

Special precautions for user : No data available

- Overland transport

Classification code (ADR) : WF2
 Special Provisions : 274
 Limited quantities (ADR) : 500g
 Excepted quantities (ADR) : E2
 Packing instructions (ADR) : P410, IBC04
 Mixed packing provisions (ADR) : MP14
 Portable tank and bulk container instructions (ADR) : T3
 Portable tank and bulk container special provisions (ADR) : TP33
 Tank code (ADR) : SGAN, L4DH
 Tank special provisions (ADR) : TU14, TE21, TM2
 Vehicle for tank carriage : AT
 Transport category (ADR) : 0
 Special provisions for carriage - Packages (ADR) : V1
 Special provisions for carriage - Loading, unloading and handling (ADR) : CV23
 Hazard identification number (Kemler No.) : 423
 Orange plates

423
3132

tunnel restriction code : D/E
 EAC code : 4W

- Transport by sea

Special provisions (IMDG) : 76, 274
 Limited quantities (IMDG) : 0
 Excepted quantities (IMDG) : E2

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Packing instructions (IMDG) : P410
 Special packing provisions (IMDG) : PP40
 IBC packing instructions (IMDG) : IBC04
 Tank instructions (IMDG) : T3
 Tank special provisions (IMDG) : TP33
 EmS-No. (Fire) : F-G
 EmS-No. (Spillage) : S-N
 Stowage category (IMDG) : None
 Segregation (IMDG) : SG26

- Air transport

PCA Excepted quantities (IATA) : E2
 PCA Limited quantities (IATA) : Y475
 PCA limited quantity max net quantity (IATA) : 5kg
 PCA packing instructions (IATA) : 483
 PCA max net quantity (IATA) : 15kg
 CAO packing instructions (IATA) : 490
 CAO max net quantity (IATA) : 50kg
 Special provisions (IATA) : A3
 ERG code (IATA) : 4FW

- Inland waterway transport


Classification code (ADN) : WF2

 Special provisions (ADN) : 274
 Limited quantities (ADN) : 500 g
 Excepted quantities (ADN) : E2
 Equipment required (ADN) : PP, EX, A
 Ventilation (ADN) : VE01
 Provisions for handling and stowage of the cargo (ADN) : HA08

Number of blue cones/lights (ADN) : 1

- Rail transport

Classification code (RID) : WF2
 Special provisions (RID) : 274
 Limited quantities (RID) : 500g
 Excepted quantities (RID) : E2
 Packing instructions (RID) : P410, IBC04
 Mixed packing provisions (RID) : MP14
 Portable tank and bulk container instructions (RID) : T3
 Portable tank and bulk container special provisions (RID) : TP33
 Tank codes for RID tanks (RID) : SGAN, L4DH

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Special provisions for RID tanks (RID) : TU14, TE21, TM2

Transport category (RID) : 0

Special provisions for carriage – Packages : W1 (RID)

Special provisions for carriage - Loading, and handling (RID) : CW23 unloading

Hazard identification number (RID) : 423

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Code: IBC : No data available.

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SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture 15.1.1.

EU-Regulations

The following restrictions are applicable according to Annex XVII of the REACH Regulation (EC) No 1907/2006:

40. Substances classified as flammable gases category 1 or 2, flammable liquids categories 1, 2 or 3, flammable solids category 1 or 2, substances and mixtures which, in contact with water, emit flammable gases, category 1, 2 or 3, pyrophoric liquids category 1 or pyrophoric solids category 1, regardless of whether they appear in Part 3 of Annex VI to Regulation (EC) No 1272/2008 or not.	Aluminium powder (stabilized)
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Contains no substance on the REACH candidate list

Contains no REACH Annex XIV substances

15.1.2. National regulations

Germany

VwVwS Annex reference : Water hazard class (WGK) 1, low hazard to waters (Classification according to VwVwS, Annex 4)

12th Ordinance Implementing the Federal Control Act - 12.BImSchV : Is not subject of the 12. BImSchV (Hazardous Incident Ordinance) Immission

Netherlands

SZW-lijst van kankerverwekkende stoffen : None of the components are listed

SZW-lijst van mutagene stoffen : None of the components are listed NIET-limitatieve lijst

van voor de : None of the components are listed voortplanting giftige stoffen –

Borstvoeding

NIET-limitatieve lijst van voor de : None of the components are listed

voortplanting giftige stoffen – Vruchtbaarheid

NIET-limitatieve lijst van voor de : None of the components are listed voortplanting giftige

stoffen – Ontwikkeling

Denmark

Recommendations Danish Regulation : Young people below the age of 18 years are not allowed to use the product

15.2. Chemical safety assessment

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SECTION 16: Other information

Abbreviations and acronyms:

	ABM = Algemene beoordelingsmethodiek
	ADN = Accord Européen relatif au Transport International des Marchandises Dangereuses par voie de Navigation du Rhin ADR = Accord européen relatif au transport international des marchandises Dangereuses par Route CLP = Classification, Labelling and Packaging Regulation according to 1272/2008/EC IATA = International Air Transport Association IMDG = International Maritime Dangerous Goods Code LEL = Lower Explosive Limit/Lower Explosion Limit UEL = Upper Explosion Limit/Upper Explosive Limit REACH = Registration, Evaluation, Authorisation and Restriction of Chemicals
	BTT = Breakthrough time (maximum wearing time)
	DMEL = Derived Minimal Effect level
	DNEL = Derived No Effect Level
	EC50 = Median Effective Concentration
	EL50 = Median effective level
	ErC50 = EC50 in terms of reduction of growth rate
	ErL50 = EL50 in terms of reduction of growth rate
	EWC = European waste catalogue
	LC50 = Median lethal concentration
	LD50 = Median lethal dose
	LL50 = Median lethal level
	NA = Not applicable
	NOEC = No observed effect concentration
	NOEL: no-observed-effect level
	NOELR = No observed effect loading rate
	NOAEC = No observed adverse effect concentration
	NOAEL = No observed adverse effect level
	N.O.S. = Not Otherwise Specified
	OEL = Occupational Exposure Limits - Short Term Exposure Limits (STELs)
	PNEC = Predicted No Effect Concentration
	Quantitative structure-activity relationship (QSAR)
	STOT = Specific Target Organ Toxicity
	TWA = time weighted average

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	VOC = Volatile organic compounds
	WGK = Wassergefährdungsklasse (Water Hazard Class under German Federal Water Management Act)

Sources of key data used to compile the : Supplier SDS. SDS LOLI eChemPortal. Calculation method. datasheet

Full text of H- and EUH-statements:

Eye Dam. 1	Serious eye damage/eye irritation Category 1
Eye Irrit. 2	Serious eye damage/eye irritation Category 2
Flam. Sol. 1	Flammable solids, Hazard Category 1
Skin Corr. 1A	Skin corrosion/irritation, Category 1A
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
Skin Irrit. 2	Skin corrosion/irritation, Category 2
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
Water-react. 2	Substances and Mixtures which, in contact with water, emit flammable gases, Hazard Category 2
H228	Flammable solid.
H261	In contact with water releases flammable gases.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.

The contents and format of this SDS are in accordance with EEC Commission Directive 1999/45/EC, 67/548/EC, 1272/2008/EC and EEC Commission Regulation 1907/2006/EC (REACH) Annex II.

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