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

1.1. Product identifier

Substance name	:	Potassium sulfate
EC-No.	:	231-915-5
CAS-No.	:	7778-80-5
REACH registration No	:	01-2119489441-34
Formula	:	K2SO4
Synonyms	:	dipotassium sulfate / dipotassium sulphate / granupotasse / potassium sulfate (2:1) / potassium sulfate, anhydrous / potassium sulfate, containing in the dry state more than 52 per cent by weight of K2O / potassium sulphate / SOP / sulfate of potash / sulfuric acid, dipotassium salt

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

1.2.1. Relevant identified uses

Main use category : fertilizer

1.2.2. Uses advised against

No additional information available

1.3. Details of the supplier of the safety data sheet

European Importer:

Haifa Chemicals Ltd.
P.O.Box 15011 Matam
P.O. Box 15011
3190500 Haifa - Israel
T +972-74-7373737 - F +972-74-7373733
Regulatory@haifa-group.com - www.haifa-group.com

Supplier/Manufacturer:

Haifa Chemicals Ltd.
P.O.Box 15011, Matam-Haifa, 31905, Israel
Tel: +972-74-7373737
Fax: +972-74-7373733
Regulatory@haifa-group.com

E-mail address of person responsible for this SDS: Regulatory@haifa-group.com

1.4. Emergency telephone number

Emergency telephone number (with hours of operation): +972-74-7373737
CHEMTREC (U.S.): 1-800-424-9300

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

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

Serious eye damage/eye irritation, Category 1 H318
Full text of H statements : see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

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

Hazard pictograms (CLP) :

GHS05

Signal word (CLP) : Danger

Hazard statements (CLP) : H318 - Causes serious eye damage.

Precautionary statements (CLP) : P280 - Wear eye protection.
P305+P351+P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310 - Immediately call a POISON CENTER.

2.3. Other hazards

No additional information available

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
potassium sulfate	(CAS-No.) 7778-80-5 (EC-No.) 231-915-5 (REACH-no) 01-2119489441-34	>85	Not classified
potassium hydrogensulfate	(CAS-No.) 7646-93-7 (EC-No.) 231-594-1 (EC Index-No.) 016-056-00-4 (REACH-no) 01-2119489441-34	0 - 15	Skin Corr. 1B, H314 STOT SE 3, H335

Full text of H-statements: see section 16

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures general : If you feel unwell, seek medical advice.

First-aid measures after inhalation : Remove the victim into fresh air. Respiratory problems: consult a doctor/medical service.

First-aid measures after skin contact : Wash with water and soap. Take victim to a doctor if irritation persists.

First-aid measures after eye contact : Rinse with water. Take victim to an ophthalmologist if irritation persists.

First-aid measures after ingestion : Rinse mouth with water. Immediately after ingestion: give lots of water to drink. Consult a doctor/medical service if you feel unwell. Never give anything by mouth to an unconscious person.

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

Symptoms/effects after inhalation : AFTER INHALATION OF DUST: Coughing.

Symptoms/effects after skin contact : Slight irritation.

Symptoms/effects after eye contact : ON CONTINUOUS EXPOSURE/CONTACT: Redness of the eye tissue. Irritation of the eye tissue.

Symptoms/effects after ingestion : AFTER ABSORPTION OF HIGH QUANTITIES: Gastrointestinal complaints. Nausea. Diarrhoea. Irritation of the gastric/intestinal mucosa. Decreased renal function. Disturbances of heart rate.

Chronic symptoms : ON CONTINUOUS/REPEATED EXPOSURE/CONTACT: Skin rash/inflammation. Respiratory difficulties.

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

Notes to physician: In case if inhalation of decomposition products I a fire, symptoms may be delayed. The exposure person may need to be kept under medical surveillance for 48 hours No additional information available

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media : Adapt extinguishing media to the environment.

Unsuitable extinguishing media : No unsuitable extinguishing media known.

5.2. Special hazards arising from the substance or mixture

Fire hazard : DIRECT FIRE HAZARD Under fire - oxides of sulfur, oxides of potassium.

Explosion hazard : DIRECT EXPLOSION HAZARD. No direct explosion hazard.

5.3. Advice for firefighters

Precautionary measures fire : Exposure to fire/heat: keep upwind. Exposure to fire/heat: consider evacuation. Exposure to fire/heat: have neighbourhood close doors and windows.

Firefighting instructions : Dilute toxic gases with water spray.

Protection during firefighting : Heat/fire exposure: compressed air/oxygen apparatus.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Protective equipment : Gloves. Protective clothing. Dust cloud production: compressed air/oxygen apparatus. See "Material-Handling" to select protective clothing.

Emergency procedures : Mark the danger area. Prevent dust cloud formation, e.g. by wetting. No naked flames. Wash contaminated clothes.

Measures in case of dust release : In case of dust production: keep upwind. Dust production: have neighbourhood close doors and windows.

6.1.2. For emergency responders

No additional information available

6.2. Environmental precautions

Avoid contact of spilt material and runoff with soil and surface waterways

6.3. Methods and material for containment and cleaning up

For containment : Contain released substance, pump into suitable containers. Consult "Material-handling" to select material of containers. Plug the leak, cut off the supply. Knock down/dilute dust cloud with water spray.

Methods for cleaning up : Prevent dust cloud formation. Scoop solid spill into closing containers. See "Material-handling" for suitable container materials. Wash down leftovers with plenty of water. Wash clothing and equipment after handling.

6.4. Reference to other sections

No additional information available

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Comply with the legal requirements. Avoid raising dust. Keep away from naked flames/heat. Observe normal hygiene standards. Keep container tightly closed. Measure the concentration in the air regularly. Carry operations in the open/under local exhaust/ventilation or with respiratory protection.

7.2. Conditions for safe storage, including any incompatibilities

Heat and ignition sources : KEEP SUBSTANCE AWAY FROM: heat sources.humidity

Storage area : Store in a dry area. Store at room temperature. Keep container in a well-ventilated place. Meet the legal requirements.

Special rules on packaging : SPECIAL REQUIREMENTS: closing. dry. correctly labelled. meet the legal requirements. Secure fragile packagings in solid containers.

Packaging materials : SUITABLE MATERIAL: wood. glass. MATERIAL TO AVOID: aluminium.

7.3. Specific end use(s)

No additional information available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Occupational exposure limit values: N/A
Deraived effects levels:
Recommended occupational and consumer exposure limit values (following from the preformed CSA):

Derived No Effect Level (DNEL)

Exposure pattern	**Workers**	**General population**
Oral	N/A	12.8 mg/kg bw/day
Dermal	21.3 mg/kg bw/day	12.8 mg/kg bw/day
Inhalation	37.6 mg/m³	11.1 mg/m³

8.2. Exposure controls

Materials for protective clothing:

GIVE GOOD RESISTANCE: rubber

Hand protection:

Gloves

Eye protection:

Safety glasses. In case of dust production: protective goggles

Skin and body protection:

Protective clothing

Respiratory protection:

Dust production: dust mask with filter type P1. Dust production: dust mask with filter type P3

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	:	Solid
Appearance	:	Crystalline solid. Powder. Grains.
Molecular mass	:	174.26 g/mol
Colour	:	Colourless to white.
Odour	:	Odourless.
Odour threshold	:	No data available
pH	:	7 at 25C
Relative evaporation rate (butylacetate=1)	:	No data available
Melting point	:	1067 °C
Freezing point	:	No data available
Boiling point	:	1689 °C
Flash point	:	Not applicable
Auto-ignition temperature	:	Not applicable
Decomposition temperature	:	No data available
Flammability (solid, gas)	:	No data available
Vapour pressure	:	No data available
Relative vapour density at 20 °C	:	No data available
Relative density	:	2.7
Density	:	266 kg/m³
Solubility	:	Soluble in water. Water: 11 g/100ml
Log Pow	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available

Explosive properties	:	No data available
Oxidising properties	:	No data available
Explosive limits	:	No data available

9.2. Other information

Minimum ignition energy	:	Not applicable
SADT	:	Not applicable
VOC content	:	Not applicable

SECTION 10: Stability and reactivity

10.1. Reactivity

On heating/burning on exposure to temperature rise: release of toxic and corrosive gases/vapours (sulphur oxides). In molten state: reacts violently with (some) metals.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No additional information available

10.4. Conditions to avoid

No additional information available

10.5. Incompatible materials

No additional information available

10.6. Hazardous decomposition products

No additional information available

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	:	Not classified
Acute toxicity (dermal)	:	Not classified
Acute toxicity (inhalation)	:	Not classified

potassium sulfate .-SOP (7778-80-5)	
LD50 oral rat	6600 mg/kg (Rat)
LD50 oral	≤ 2000 mg/kg
LD50 dermal rat	≤ 2000 mg/kg
LC50 inhalation rat (mg/l)	≤ 1200 mg/m³

potassium hydrogensulfate (7646-93-7)	
LD50 oral rat	2340 mg/kg (Rat)

Skin corrosion/irritation	:	Not classified pH: 7
Serious eye damage/irritation	:	Causes serious eye damage. pH: 7
Respiratory or skin sensitisation	:	Not classified
Germ cell mutagenicity	:	Not classified
Carcinogenicity	:	Not classified
Reproductive toxicity	:	An OECD 422 study with rats shows no effects at all up to doses of 1500 mg/kg bw/day of potassium sulphate. No effects were found on reproduction parameters, neither embryotoxic or developmental effects were seen
STOT-single exposure	:	Not classified
STOT-repeated exposure	:	Not classified
Aspiration hazard	:	Not classified

SECTION 12: Ecological information

12.1. Toxicity

potassium sulfate .-SOP (7778-80-5)	
LC50 fish 2	653 - 796 mg/l (LC50; 96 h; Lepomis macrochirus)
EC50 Daphnia 1	890 mg/l (EC50; 48 h)
Threshold limit algae 1	2900 mg/l (EC50; 72 h)

potassium hydrogensulfate (7646-93-7)	
LC50 fish 1	3500 mg/l (LC50)

12.2. Persistence and degradability

potassium sulfate (7778-80-5)	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
potassium hydrogensulfate (7646-93-7)	
Persistence and degradability	Biodegradability: not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable

12.3. Bioaccumulative potential

potassium sulfate (7778-80-5)	
Bioaccumulative potential	Not bioaccumulative.
potassium hydrogensulfate (7646-93-7)	
Bioaccumulative potential	No bioaccumulation data available.

12.4. Mobility in soil

No additional information available

12.5. Results of PBT and vPvB assessment

No additional information available

12.6. Other adverse effects

No additional information available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product/Packaging disposal recommendations : Remove waste in accordance with local and/or national regulations. Recycle/reuse. Precipitate/make insoluble. Remove to an authorized dump (Class I).

Additional information : LWCA (the Netherlands): KGA category 05. Can be considered as non hazardous waste according to Directive 2008/98/EC.

SECTION 14: Transport information

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

14.1. UN number

UN-No. (ADR) : Not applicable

UN-No. (IMDG) : Not applicable

UN-No. (IATA) : Not applicable

UN-No. (ADN) : Not applicable

UN-No. (RID) : Not applicable

14.2. UN proper shipping name

Proper Shipping Name (ADR) : Not applicable

Proper Shipping Name (IMDG)	:	Not applicable
Proper Shipping Name (IATA)	:	Not applicable
Proper Shipping Name (ADN)	:	Not applicable
Proper Shipping Name (RID)	:	Not applicable

14.3. Transport hazard class(es)

ADR

Transport hazard class(es) (ADR) : Not applicable

IMDG

Transport hazard class(es) (IMDG) : Not applicable

IATA

Transport hazard class(es) (IATA) : Not applicable

ADN

Transport hazard class(es) (ADN) : Not applicable

RID

Transport hazard class(es) (RID) : Not applicable

14.4. Packing group

Packing group (ADR)	:	Not applicable
Packing group (IMDG)	:	Not applicable
Packing group (IATA)	:	Not applicable
Packing group (ADN)	:	Not applicable
Packing group (RID)	:	Not applicable

14.5. Environmental hazards

Dangerous for the environment	:	No
Marine pollutant	:	No
Other information	:	No supplementary information available

14.6. Special precautions for user

- Overland transport

Not applicable

- Transport by sea

Not applicable

- Air transport

Not applicable

- Inland waterway transport

Not applicable

- Rail transport

Not applicable

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

Not applicable

SECTION 15: Regulatory information

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

15.1.1. EU-Regulations

No REACH Annex XVII restrictions

potassium sulfate is not on the REACH Candidate List
potassium sulfate is not on the REACH Annex XIV List

VOC content : Not applicable

15.1.2. National regulations

No additional information available

15.2. Chemical safety assessment

No additional information available

SECTION 16: Other information

Full text of H- and EUH-statements:

Eye Dam. 1	Serious eye damage/eye irritation, Category 1
Skin Corr. 1B	Skin corrosion/irritation, Category 1B
STOT SE 3	Specific target organ toxicity — Single exposure, Category 3, Respiratory tract irritation
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H335	May cause respiratory irritation.

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This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product