

SAFETY DATA SHEET

SECTION 1: PRODUCT AND COMPANY INFORMATION

Product name: Component K

Contact:

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SECTION 2: HAZARD IDENTIFICATION

GHS classification of the substance/mixture:

GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)

Flammable liquids (Category 4), H227

Acute toxicity, Oral (Category 4), H302

Acute aquatic toxicity (Category 2), H401

For the full text of the H-Statements mentioned in this Section, see Section 16.

GHS label elements, including precautionary statements:

Pictogram none

Signal word Warning

Hazard statement(s)

| | |
|------|------------------------|
| H227 | Combustible liquid. |
| H302 | Harmful if swallowed. |
| H401 | Toxic to aquatic life. |

Precautionary statement(s)

| | |
|-------------|-------------------------------------------------------------------------------|
| P210 | Keep away from heat/sparks/open flames/hot surfaces. - No smoking. |
| P264 | Wash skin thoroughly after handling. |
| P270 | Do not eat, drink or smoke when using this product. |
| P273 | Avoid release to the environment. |
| P280 | Wear protective gloves/ protective clothing/ eye protection/ face protection. |
| P301 + P312 | IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. |
| P330 | Rinse mouth. |
| P370 + P378 | In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for |

extinction.
P403 + P235 Store in a well-ventilated place. Keep cool.
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards which do not result in the classification or are not covered by the GHS:
None.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS SUBSTANCE

Hazardous components

| component | Classification | Concentration |
|--------------------|-------------------------------------------|---------------|
| Dimethyl sulfoxide | Flam. Liq. 4; H227 | <= 100 % |
| Tretinoin | Acute Tox. 4; Aquatic Acute 2; H302, H401 | 0.2 |

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: FIRST AID MEASURES

General advice

Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled

If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact

Wash off with soap and plenty of water. Consult a physician.

In case of eye contact

Flush eyes with water as a precaution.

If swallowed

Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11.

Indication of any immediate medical attention and special treatment needed

No data available.

SECTION 5: FIRE-FIGHTING MEASURES

Suitable extinguishing media:

For small (incipient) fires, use media such as "alcohol" foam, dry chemical, or carbon dioxide. For large fires, apply water from as far as possible. Use very large quantities (flooding) of water applied as a mist or spray; solid streams of water may be ineffective. Cool all affected containers with flooding quantities of water.

Specific hazards arising from the substance or mixture:

Carbon oxides, Sulphur oxides.

Special protective equipment and precautions for firefighters:

Wear self-contained breathing apparatus for firefighting if necessary.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures:

Avoid breathing vapours, mist or gas. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.

Environmental precautions:

Prevent further leakage or spillage if safe to do so. Do not let product enter drains. Discharge into the environment must be avoided.

Methods and materials for containment and cleaning up:

Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

Reference to other sections

For disposal see section 13.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling:

Avoid contact with skin and eyes. Avoid formation of dust and aerosols. Provide appropriate exhaust ventilation at places where dust is formed. For precautions see section 2.2.

Conditions for safe storage, including any incompatibilities:

Keep container tightly closed in a dry and well-ventilated place. Light sensitive.

Specific end uses:

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters:

Components with workplace control parameters

Components with workplace control parameters

| Component | CAS-No. | Value | Control parameters | Basis |
|--------------------|---------|-------|--------------------|-----------------------------------------------------|
| Dimethyl sulfoxide | 67-68-5 | TWA | 250.000000 ppm | USA. Workplace Environmental Exposure Levels (WEEL) |

Exposure controls

Appropriate engineering controls

Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.

Personal protective equipment:

| | |
|-------------------|--------------------------------------------------------------------------|
| Respiratory: | In case of insufficient ventilation wear suitable respiratory equipment. |
| Eyes: | Safety goggles or splash guard safety glasses. |
| Body: | Lab coat and gloves. |
| Hygiene measures: | Handle in accordance with good industrial hygiene and safety practice. |

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

| | |
|------------------------------------------|----------------------------------------------|
| Appearance: | Form: liquid, clear Color: colorless |
| Odor: | No data available. |
| Odor threshold: | No data available. |
| pH: | No data available. |
| Melting point/freezing point: | Melting point/range: 16 - 19 °C (61 - 66 °F) |
| Initial boiling point and boiling range: | 189 °C (372 °F) |
| Flash point: | 87 °C (189 °F) - closed cup |
| Evaporation rate: | No data available. |
| Flammability (solid, gas): | No data available. |

| | |
|-----------------------------------------------|-------------------------------------------------------------------|
| Upper/lower flammability or explosive limits: | Upper explosion limit: 42 %(V) Lower explosion limit: 3.5 %(V) |
| Vapor pressure: | 0.55 hPa (0.41 mmHg) at 20 °C (68 °F) |
| Vapor density: | 2.70 - (Air = 1.0) |
| Relative density: | No data available. |
| Water Solubility(ies): | completely miscible |
| Partition coefficient: n-octanol/water: | No data available. |
| Auto-ignition temperature: | No data available. |
| Decomposition temperature: | No data available. |
| Viscosity: | No data available. |
| Explosive properties: | No data available. |
| Oxidizing properties: | No data available. |

Other safety information

Relative vapour density 2.70 - (Air = 1.0)

SECTION 10: STABILITY AND REACTIVITY

| | |
|-------------------------------------|-----------------------------------------------------------------------------------------------|
| Reactivity: | No data available. |
| Chemical stability: | Stable under recommended storage conditions. |
| Possibility of hazardous reactions: | No data available. |
| Conditions to avoid: | Heat, flames, and sparks. |
| Incompatible materials: | Acid chlorides, Phosphorus halides, Strong acids/alkalis, Strong oxidizing/reducing agents |
| Hazardous decomposition products: | Other decomposition products - No data available In the event of fire: see section 5 |

SECTION 11: TOXICOLOGICAL INFORMATION**Acute toxicity:**Dimethyl sulfoxide

LD50 Oral - Rat - 14,500 mg/kg

LC50 Inhalation - Rat - 4 h - 40250 ppm

LD50 Dermal - Rabbit - > 5,000 mg/kg

Tretinoin

LD50 Oral - rat - 2,000 mg/kg

Inhalation: no data available

LD50 Dermal - rabbit - > 2,500 mg/kg

Skin corrosion/irritation:

No data available.

Serious eye damage/eye irritation:Tretinoin

Eyes - rabbit

Result: No eye irritation

Respiratory or skin sensitization:

No data available.

Germ cell mutagenicity

Dimethyl sulfoxide

Mouse

lymphocyte

Cytogenetic analysis

Mouse

lymphocyte

Mutation in mammalian somatic cells.

Rat

Cytogenetic analysis

Mouse

DNA damage

Carcinogenicity

Dimethyl sulfoxide

Carcinogenicity - Rat - Oral

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Skin and Appendages: Other: Tumors.

Carcinogenicity - Mouse - Oral

Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Leukaemia Skin and Appendages: Other: Tumors.

IARC: No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

NTP: No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

Reproductive toxicity

Dimethyl sulfoxide

Reproductive toxicity - Rat - Intraperitoneal
Effects on Fertility: Abortion.

Reproductive toxicity - Rat - Intraperitoneal
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).

Reproductive toxicity - Rat - Subcutaneous
Effects on Fertility: Post-implantation mortality (e.g., dead and/or resorbed implants per total number of implants).
Effects on Fertility: Litter size (e.g.; # fetuses per litter; measured before birth).

Reproductive toxicity - Mouse - Oral
Effects on Fertility: Pre-implantation mortality (e.g., reduction in number of implants per female; total number of implants per corpora lutea). Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Developmental Toxicity - Mouse - Intraperitoneal
Effects on Embryo or Fetus: Fetotoxicity (except death, e.g., stunted fetus). Specific Developmental Abnormalities: Musculoskeletal system.

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

Additional Information

Dimethyl sulfoxide

RTECS: PV6210000

Tretinoin

RTECS: VH6475000

Exposure may cause irritation of eyes, mucous membranes, upper respiratory tract and skin.
Effects due to ingestion may include: Nausea, Fatigue, Headache
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.
Eyes - Eye disease - Based on Human Evidence

SECTION 12: ECOLOGICAL INFORMATION

Toxicity:Dimethyl sulfoxide

| | |
|-----------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Toxicity to fish | LC50 - Pimephales promelas (fathead minnow) - 34,000 mg/l - 96 h LC50 - Oncorhynchus mykiss (rainbow trout) - 35,000 mg/l - 96 h |
| Toxicity to daphnia and other aquatic invertebrates | EC50 - Daphnia magna (Water flea) - 24,600 mg/l - 48 h (OECD Test Guideline 202) |
| Toxicity to algae | EC50 - Pseudokirchneriella subcapitata (green algae) - 17,000 mg/l - 72 h (OECD Test Guideline 201) |

Tretinoin

| | |
|------------------|----------------------------------------------------|
| Toxicity to fish | LC50 - Danio rerio (zebra fish) - 4.64 mg/l - 96 h |
|------------------|----------------------------------------------------|

Persistence and degradabilityDimethyl sulfoxide

| | |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| Biodegradability | Result: 31 % - According to the results of tests of biodegradability this product is not readily biodegradable. (OECD Test Guideline 301D) |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|

Tretinoin

Biodegradability Result: > 60 % - Readily biodegradable.

Bioaccumulative potential

No data available.

Mobility in soil

No data available.

Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted.

Other adverse effects

May be harmful to the aquatic environment.

Stability in water - 0.12 - 1.2 h at 30 °C

SECTION 13: DISPOSAL INFORMATION**Product**

This combustible material may be burned in a chemical incinerator equipped with an afterburner and scrubber. Offer surplus and non-recyclable solutions to a licensed disposal company.

Contaminated packaging

Dispose of as unused product.

SECTION 14: TRANSPORT INFORMATION

Dimethyl sulfoxide

DOT (US)

NA-Number: 1993 Class: NONE Packing group: III

Proper shipping name: Combustible liquid, n.o.s. (Dimethyl sulfoxide) (Dimethyl sulfoxide)

Poison Inhalation Hazard: No

IMDG

Not dangerous goods.

IATA

Not dangerous goods.

Tretinoin

DOT (US)

Not dangerous goods

IMDG

UN number: 3077 Class: 9 Packing group: III EMS-No: F-A, S-F

Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Tretinoin)

Marine pollutant: Marine pollutant

IATA

UN number: 3077 Class: 9 Packing group: III

Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (Tretinoin)

Further information

EHS-Mark required (ADR 2.2.9.1.10, IMDG code 2.10.3) for single packagings and combination packagings containing inner packagings with Dangerous Goods > 5L for liquids or > 5kg for solids.

SECTION 15: REGULATORY INFORMATION

US Federal Regulations:

SARA 302 Components.

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 Components

This material does not contain any chemical components with known CAS

numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

No SARA Hazards

US State regulations:

Massachusetts Right To Know Components

No components are subject to the Massachusetts Right to Know Act.

Pennsylvania Right To Know Components

| | CAS-No. |
|--------------------|----------|
| Dimethyl sulfoxide | 67-68-5 |
| Tretinoin | 302-79-4 |

New Jersey Right To Know Components

| | CAS-No. |
|--------------------|----------|
| Dimethyl sulfoxide | 67-68-5 |
| Tretinoin | 302-79-4 |

California Prop. 65 Components

This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

SECTION 16: OTHER INFORMATION

Dimethyl sulfoxide

HMIS Rating

| | |
|------------------------|---|
| Health hazard: | 0 |
| Chronic Health Hazard: | |
| Flammability: | 2 |
| Physical Hazard: | 0 |

NFPA Rating

| | |
|--------------------|---|
| Health hazard: | 0 |
| Fire Hazard: | 2 |
| Reactivity Hazard: | 0 |

Tretinoin

HMIS Rating

| | |
|------------------------|---|
| Health hazard: | 1 |
| Chronic Health Hazard: | |
| Flammability: | 0 |

| | |
|-----------------|---|
| Physical Hazard | 0 |
|-----------------|---|

NFPA Rating

| | |
|----------------|---|
| Health hazard: | 0 |
|----------------|---|

| | |
|--------------|---|
| Fire Hazard: | 0 |
|--------------|---|

| | |
|--------------------|---|
| Reactivity Hazard: | 0 |
|--------------------|---|

Other comments:

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