



Safety Data Sheet
acc. to OSHA HCS

Printing date 01/15/2019

Reviewed on 01/15/2019

1 Identification

· **Product identifier**

· **Trade name:** **Activator Universal Plus Paste**

· **Application of the substance / the mixture** Activator for dental impression material

· **Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**

Kulzer GmbH

Leipziger Straße 2, 63450 Hanau (Germany)

Tel.: +49 (0)800 4372522

· **Information department:**

Tel. +1 (800) 431-1785 Fax: +1 (800) 522-1545

e-mail: customer.servicehka@kulzer-dental.com

· **Emergency telephone number:**

Emergency CONTACT (24-Hour-Number)

ID 105860: (domestic) 1 800 535 5053 or international (001) 352 323 3500

2 Hazard(s) identification

· **Classification of the substance or mixture**

Flam. Liq. 3 H226 Flammable liquid and vapor.

Acute Tox. 4 H332 Harmful if inhaled.

Eye Irrit. 2A H319 Causes serious eye irritation.

STOT RE 2 H373 May cause damage to organs through prolonged or repeated exposure.

· **Label elements**

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

· **Hazard pictograms**



GHS02 GHS07 GHS08

· **Signal word** Warning

· **Hazard-determining components of labeling:**

tetraethyl orthosilicate

dioctyltin oxide

tetramethyl orthosilicate

· **Hazard statements**

Flammable liquid and vapor.

Harmful if inhaled.

Causes serious eye irritation.

May cause damage to organs through prolonged or repeated exposure.

· **Precautionary statements**

Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

Use explosion-proof electrical/ventilating/lighting/equipment.

Do not breathe dust/fume/gas/mist/vapors/spray.

Wear protective gloves/protective clothing/eye protection/face protection.

If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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- **Classification system**
- **NFPA ratings for USA (scale 0-4)**



- **HMS-Ratings (Scale 0-4)**



- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** -

- **Dangerous components:**

| | | |
|----------|--|--------|
| 78-10-4 | tetraethyl orthosilicate Flam. Liq. 3, H226; Acute Tox. 4, H332; Eye Irrit. 2A, H319; STOT SE 3, H335 | 10-25% |
| 870-08-6 | dioctyltin oxide STOT RE 2, H373 | 10-25% |

- **Additional information** For the wording of the listed hazard phrases refer to section 16.

4 First-aid measures

- **Description of first aid measures**

- **General information**

Symptoms of poisoning may even occur after several hours; therefore medical observation for at least 48 hours after the accident.

- **After inhalation** Supply fresh air; consult doctor in case of complaints.

- **After skin contact**

Immediately rinse with water.

If skin irritation continues, consult a doctor.

- **After eye contact**

Rinse opened eye for several minutes under running water. Then consult a doctor.

- **After swallowing**

Rinse out mouth and then drink plenty of water.

If symptoms persist consult doctor.

- **Information for doctor**

- **Most important symptoms and effects, both acute and delayed**

No further relevant information available.

- **Indication of any immediate medical attention and special treatment needed**

No further relevant information available.

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5 Fire-fighting measures

- **Extinguishing media**
 - **Suitable extinguishing agents**
CO₂, extinguishing powder or water spray. Fight larger fire with alcohol resistant foam.
 - **For safety reasons unsuitable extinguishing agents** Water with full jet.
- **Special hazards arising from the substance or mixture**
Can form explosive gas-air mixtures.
Carbon monoxide (CO)
Carbon dioxide (CO₂)
Formation of toxic gases is possible during heating or in case of fire.
- **Advice for firefighters**
 - **Protective equipment:** Mount respiratory protective device.
- **Additional information** -

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Do not allow to enter sewers/ surface or ground water.
Do not allow to penetrate the ground/soil.
- **Methods and material for containment and cleaning up:**
Pick up mechanically.
Send for recovery or disposal in suitable receptacles.
- **Reference to other sections**
See Section 7 for information on safe handling
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
-
- **Protective Action Criteria for Chemicals**

· **PAC-1:**

| | | |
|-------------|---------------------------|----------------------|
| 112945-52-5 | Kieselsäuren, amorphe | 18 mg/m ³ |
| 78-10-4 | tetraethyl orthosilicate | 25 ppm |
| 681-84-5 | tetramethyl orthosilicate | 0.083 ppm |

· **PAC-2:**

| | | |
|-------------|---------------------------|-----------------------|
| 112945-52-5 | Kieselsäuren, amorphe | 100 mg/m ³ |
| 78-10-4 | tetraethyl orthosilicate | 100 ppm |
| 681-84-5 | tetramethyl orthosilicate | 0.91 ppm |

· **PAC-3:**

| | | |
|-------------|---------------------------|-----------------------|
| 112945-52-5 | Kieselsäuren, amorphe | 630 mg/m ³ |
| 78-10-4 | tetraethyl orthosilicate | 300 ppm |
| 681-84-5 | tetramethyl orthosilicate | 1.4 ppm |

7 Handling and storage

- **Handling**
 - **Precautions for safe handling**
Keep receptacles tightly sealed.
Ensure good ventilation/exhaustion at the workplace.

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Prevent formation of aerosols.

Please observe the additional instructions in the product's instructions for use.

Information about protection against explosions and fires:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Conditions for safe storage, including any incompatibilities

Storage

· **Requirements to be met by storerooms and receptacles:** No special requirements.

· **Information about storage in one common storage facility:** Not required.

· **Further information about storage conditions:**

Store in dry conditions.

Store receptacle in a well ventilated area.

· **Specific end use(s)** No further relevant information available.

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

Control parameters

· **Components with limit values that require monitoring at the workplace:**

78-10-4 tetraethyl orthosilicate

PEL Long-term value: 850 mg/m³, 100 ppm

REL Long-term value: 85 mg/m³, 10 ppm

TLV Long-term value: 85 mg/m³, 10 ppm

· **Additional information:** The lists that were valid during the creation were used as basis.

Exposure controls

Personal protective equipment

General protective and hygienic measures

Avoid contact with the eyes.

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

Breathing equipment:

Use suitable respiratory protective device in case of insufficient ventilation.

Protection of hands:

Impervious gloves

Check protective gloves prior to each use for their proper condition.

recommended

Material of gloves

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

Penetration time of glove material

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **For the permanent contact of a maximum of 15 minutes gloves made of the following materials are suitable:**

Butyl rubber, BR

Nitrile rubber, NBR

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- **Eye protection:** *Tightly sealed goggles.*
- **Body protection:** *Protective work clothing.*

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9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **General Information**

· **Appearance:**

- **Form:** *Pasty*
- **Color:** *Red*
- **Odor:** *Aromatic*
- **Odor threshold:** *Not determined.*

· **pH-value:** *Not determined.*

· **Change in condition**

- **Melting point/Melting range:** *undetermined*
- **Boiling point/Boiling range:** *166 °C (330.8 °F)*

· **Flash point:** *48 °C (118.4 °F)*

· **Flammability (solid, gaseous)** *Not applicable.*

· **Ignition temperature:** *234 °C (453.2 °F)*

· **Decomposition temperature:** *Not determined.*

· **Auto igniting:** *Product is not selfigniting.*

· **Danger of explosion:** *Product is not explosive. However, formation of explosive air/vapor mixtures are possible.*

· **Explosion limits:**

- **Lower:** *1,3 Vol %*
- **Upper:** *23 Vol %*

· **Vapor pressure at 20 °C (68 °F):** *1,7 hPa (1.3 mm Hg)*

· **Density at 20 °C (68 °F):** *1,15 g/cm³ (9.59675 lbs/gal)*

- **Relative density** *Not determined.*
- **Vapor density** *Not determined.*
- **Evaporation rate** *Not determined.*

· **Solubility in / Miscibility with**

· **Water:** *Not miscible or difficult to mix*

· **Partition coefficient (n-octanol/water):** *Not determined.*

· **Viscosity:**

- **dynamic:** *Not determined.*
- **kinematic:** *Not determined.*

· **Solvent content:**

· **Solids content:** *80,0 %*

· **Other information** *No further relevant information available.*

10 Stability and reactivity

- **Reactivity** *No further relevant information available.*
- **Possibility of hazardous reactions** *No dangerous reactions known*

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- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:** none
- **Additional information:** -

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

112945-52-5 Kieselsäuren, amorphe

Oral LD50 >10,000 mg/kg (rat)

Dermal LD50 >5,000 mg/kg (rabbit)

78-10-4 tetraethyl orthosilicate

Oral LD50 6,270 mg/kg (rat)

Dermal LD50 5,878 mg/kg (can)

870-08-6 dioctyltin oxide

Oral LD50 >4,000 mg/kg (rat)

681-84-5 tetramethyl orthosilicate

Oral LD50 700 mg/kg (rat)

- **Primary irritant effect:**
- **on the eye:** Irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:** Harmful

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

12 Ecological information

- **Toxicity**

- **Aquatic toxicity:**

112945-52-5 Kieselsäuren, amorphe

LC50/96h >10,000 mg/l (fish)

78-10-4 tetraethyl orthosilicate

EC50/48h >844 mg/l (daphnia)

870-08-6 dioctyltin oxide

EC50/48h 6.9 mg/l (daphnia)

LC50/96h 13 mg/l (fish)

- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.

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- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
 - **General notes:**
 - Avoid transfer into the environment.
 - Do not allow product to reach ground water, water course or sewage system.
 - Danger to drinking water if even small quantities leak into the ground.
- **Results of PBT and vPvB assessment**
 - **PBT:** Not applicable.
 - **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
 - **Recommendation** Smaller quantities can be disposed of with household waste.
- **Uncleaned packagings:**
 - **Recommendation:** Disposal must be made according to official regulations.

14 Transport information

- **UN-Number**
 - **DOT, ADR, IMDG, IATA** UN1993
- **UN proper shipping name**
 - **DOT** Flammable liquids, n.o.s. (Tetraethyl silicate, Methyl orthosilicate)
 - **ADR** 1993 Flammable liquids, n.o.s. (Tetraethyl silicate, Methyl orthosilicate)
 - **IMDG, IATA** FLAMMABLE LIQUID, N.O.S. (TETRAETHYL SILICATE, METHYL ORTHOSILICATE)
- **Transport hazard class(es)**
 - **DOT**

 - **Class** 3 Flammable liquids
 - **Label** 3
 - **ADR**

 - **Class** 3 (F1) Flammable liquids

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| | |
|---|--|
| · Label | 3 |
| · IMDG, IATA | |
|  | |
| · Class | 3 Flammable liquids |
| · Label | 3 |
| · Packing group | |
| · DOT, ADR, IMDG, IATA | III |
| · Environmental hazards: | |
| · Marine pollutant: | No |
| · Special precautions for user | Warning: Flammable liquids |
| · Danger code (Kemler): | 30 |
| · EMS Number: | F-E, S-E |
| · Stowage Category | A |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| · Transport/Additional information: | - |
| · ADR | |
| · Excepted quantities (EQ) | Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml |
| · IMDG | |
| · Limited quantities (LQ) | 5L |
| · Excepted quantities (EQ) | Code: E1 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 1000 ml |
| · UN "Model Regulation": | UN 1993 FLAMMABLE LIQUIDS, N.O.S. (TETRAETHYL SILICATE, METHYL ORTHOSILICATE), 3, III |

15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**
· Sara

· **SARA Section 355 (extremely hazardous substances)**

None of the ingredients is listed.

· **SARA Section 313 (specific toxic chemical listings)**

None of the ingredients is listed.

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· Proposition 65

· Prop 65 - Chemicals known to cause cancer
None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for females:
None of the ingredients is listed.

· Chemicals known to cause reproductive toxicity for males:
None of the ingredients is listed.

· Chemicals known to cause developmental toxicity:
None of the ingredients is listed.

· Cancerogenity categories

· EPA (Environmental Protection Agency)
None of the ingredients is listed.

· TLV (Threshold Limit Value established by ACGIH)
870-08-6 dioctyltin oxide A4

· NIOSH-Ca (National Institute for Occupational Safety and Health)
None of the ingredients is listed.

· Chemical safety assessment: A Chemical Safety Assessment has not been carried out.

16 Other information

These data are based on our present knowledge. However, they shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· Relevant phrases

- H226 Flammable liquid and vapor.
- H319 Causes serious eye irritation.
- H332 Harmful if inhaled.
- H335 May cause respiratory irritation.
- H373 May cause damage to organs through prolonged or repeated exposure.

· Date of preparation / last revision 01/15/2019 / 3

· Abbreviations and acronyms:

- ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
- IMDG: International Maritime Code for Dangerous Goods
- DOT: US Department of Transportation
- IATA: International Air Transport Association
- ACGIH: American Conference of Governmental Industrial Hygienists
- EINECS: European Inventory of Existing Commercial Chemical Substances
- ELINCS: European List of Notified Chemical Substances
- CAS: Chemical Abstracts Service (division of the American Chemical Society)
- NFPA: National Fire Protection Association (USA)
- HMIS: Hazardous Materials Identification System (USA)
- LC50: Lethal concentration, 50 percent
- LD50: Lethal dose, 50 percent
- PBT: Persistent, Bioaccumulative and Toxic
- vPvB: very Persistent and very Bioaccumulative
- NIOSH: National Institute for Occupational Safety
- OSHA: Occupational Safety & Health
- TLV: Threshold Limit Value
- PEL: Permissible Exposure Limit
- REL: Recommended Exposure Limit
- Flam. Liq. 3: Flammable liquids – Category 3
- Acute Tox. 4: Acute toxicity – Category 4
- Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A
- STOT SE 3: Specific target organ toxicity (single exposure) – Category 3
- STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2

· * Data compared to the previous version altered.