

Safety Data Sheet

acc. to OSHA HCS

Printing date 05/15/2025

Reviewed on 05/15/2025

1 Identification

- **Product identifier**
- **Trade name: ACTIVATOR PASTE**
- **Application of the substance / the mixture** Material for dental use
- **Uses advised against** Any use other than those identified is not recommended.
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Dental Manufacturing S.p.a.
Via Cà Mignola Nuova, 1699
45021 - Badia Polesine (RO) - Italy
Tel. +39 0425 51628 - Fax +39 0425 590156
- **Information department:** info@ruthinium.it

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flammable Liquids 3

H226 Flammable liquid and vapor.



GHS08 Health hazard

Specific Target Organ Toxicity - Single Exposure 2 H371 May cause damage to organs.



GHS07

Eye Irritation 2A

H319 Causes serious eye irritation.

Sensitization - Skin 1

H317 May cause an allergic skin reaction.

- **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:**
1,1,3,3-Tetraoctyl-1-3-bis((2,2,3,5-oxotetramethylhexyl)oxy)distannoxane, dimer trimethoxyvinylsilane
- **Hazard statements**
Flammable liquid and vapor.
Causes serious eye irritation.
May cause an allergic skin reaction.
May cause damage to organs.
- **Precautionary statements**
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

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Avoid breathing dust/fume/gas/mist/vapors/spray

Wear protective gloves / eye protection / face protection.

If on skin: Wash with plenty of water.

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

Call a poison center/doctor if you feel unwell.

In case of fire: Use CO₂, powder or water spray to extinguish.

Store in a well-ventilated place. Keep cool.

Dispose of contents/container in accordance with local/regional/national/international regulations.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**

Health = 2

Fire = 3

Reactivity = 0

· **HMIS-ratings (scale 0 - 4)**

Health = 2

Fire = 3

Reactivity = 0

· **Other hazards**

· **Results of PBT and vPvB assessment**

· **PBT:**

According to the available data, the product does not contain any PBT substances in a proportion \geq 0.1%.

· **vPvB:**

According to the available data, the product does not contain vPvB substances in a proportion \geq 0.1%.

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 78-10-4	tetraethyl silicate	15-25%
	1,1,3,3-Tetraoctyl-1-3-bis((2,2,3,5-oxotetramethylhexyl)oxy) distannoxane, dimer	15-25%
CAS: 2768-02-7	trimethoxyvinylsilane	2-5%

4 First-aid measures

· **Description of first aid measures**

· **General information:**

Rescue workers must wear the protective equipment described in section 8.2 of this safety data sheet.

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

· **After eye contact:** Rinse opened eye for several minutes under running water.

· **After swallowing:**

Rinse out mouth and then drink plenty of water.

If ingested do not induce vomiting, seek medical assistance showing the safety data sheet or the hazard label

· **Information for doctor:**

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

May cause organ damage with prolonged or repeated exposure

Eyes: irritation

Skin contact: allergic skin reaction, redness, dryness.

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- **Indication of any immediate medical attention and special treatment needed**
If any symptoms appear and/or if in doubt, contact a physician and provide this SDS.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:**
CO₂, sand, extinguishing powder. Do not use water.
CO₂, extinguishing powder or water spray. Fight larger fires with water spray.
- **For safety reasons unsuitable extinguishing agents:**
Water with full jet
Do not use water jets that can cause the spread and extension of fire.
- **Special hazards arising from the substance or mixture**
In case of fire, the following can be released:
Carbon monoxide (CO)
Nitrogen oxides (NO_x)
In certain fire conditions, traces of other toxic gases cannot be excluded.
- **Advice for firefighters**
- **Protective equipment:**
As in any fire, wear self-contained breathing apparatus and appropriate protective clothing including gloves and eye / face protection.
See Section 8 for information on personal protection equipment.
- **Additional information**
Do not inhale gases resulting from explosions and fires. Cool containers with jets of water to prevent decomposition of the product and the development of substances potentially hazardous to health.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
See Section 8 for information on personal protection equipment.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Send for recovery or disposal in suitable receptacles.
Ensure adequate ventilation.
Do not flush with water or aqueous cleansing agents
- **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:**

CAS: 78-10-4	tetraethyl silicate	25 ppm
CAS: 2768-02-7	trimethoxyvinylsilane	9.5 ppm

- **PAC-2:**

CAS: 78-10-4	tetraethyl silicate	100 ppm
CAS: 2768-02-7	trimethoxyvinylsilane	100 ppm

- **PAC-3:**

CAS: 78-10-4	tetraethyl silicate	300 ppm
CAS: 2768-02-7	trimethoxyvinylsilane	120 ppm

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7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
You should follow the usual precautions for handling chemical products
Ensure good ventilation/exhaustion at the workplace.
Avoid contact with eyes and skin.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
Emergency cooling must be available in case of nearby fire.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** Store only in the original receptacle.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**
Keep receptacle tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
- **Specific end use(s)** No further data; see section 1.2.

8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see section 7.
- **Control parameters**
- **Components with limit values that require monitoring at the workplace:**
The following constituent is the only constituent of the product which has a PEL, TLV or other recommended exposure limit.
At this time, the other constituents have no known exposure limits.

CAS: 78-10-4 tetraethyl silicate (15-25%)

PEL	Long-term value: 850 mg/m ³ , 100 ppm
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REL	Long-term value: 85 mg/m ³ , 10 ppm
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TLV	Long-term value: 85 mg/m ³ , 10 ppm
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· DNEL

CAS: 78-10-4 tetraethyl silicate

Dermal	Lungo termine, effetti sistemici	12.1 mg/kg bw/day (professional workers)
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Inhalative	Lungo termine, effetti sistemici	85 mg/m ³ (professional workers)
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· PNEC

CAS: 78-10-4 tetraethyl silicate

PNEC	0.18 mg/kg /peso bagna (fresh water sediments)
	0.018 mg/kg /peso bagn (marine water sediments)

PNEC	0.192 mg/l (freshwater)
	10 mg/l (intermittent releases)
	0.0192 mg/l (marine water)
	4,000 mg/l (sewage treatment plant)

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
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:** Not necessary if room is well-ventilated.

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- **Protection of hands:**

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation



Protective gloves

- **Material of gloves**

Neoprene gloves

Nitrile rubber, NBR

Recommended thickness of the material: ≥ 0.2 mm

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**

Value for the permeation: Level $\leq 2/3$

Breakthrough time: ≥ 480 min - Material thickness: ≥ 0.7 mm

Breakthrough time: ≥ 60 min - Material thickness: ≥ 0.5 mm

Breakthrough time: ≥ 30 min - Material thickness: ≥ 0.2 mm

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

- **Eye protection:**



Tightly sealed goggles

- **Limitation and supervision of exposure into the environment**

Observe safety measures related to the environment; refer to Section 6.2.

9 Physical and chemical properties

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

- **General Information**

- **Appearance:**

Form:	Pasty
Color:	Dark blue
Odor:	Characteristic
Odor threshold:	Not determined.

- **pH-value:** Not determined.

- **Change in condition**

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.

- **Flash point:** 29 °C (84.2 °F)

- **Flammability:** Flammable.

- **Ignition temperature:** Product is not selfigniting.

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

- **Explosion limits:**

Lower: Not determined.

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Upper:	Not determined.
· Vapor pressure:	Not determined.
· Density at 20 °C (68 °F):	0.98 g/cm ³ (8.1781 lbs/gal)
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with Water:	Not determined.
· Partition coefficient (n-octanol/water):	Not determined.
· Viscosity:	
Dynamic:	Not determined.
Kinematic:	Not determined.
· Solvent content:	
VOC content:	17.55 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No hazardous reactions when stored and handled according to instructions
- **Chemical stability** The product is stable under normal conditions of use and storage
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **Possibility of hazardous reactions** Develops readily flammable gases / fumes.
- **Conditions to avoid**
Avoid exposing the product to high temperatures. Keep the product away from open flames. Avoid humidity.
- **Incompatible materials:** No further relevant information available.
- **Hazardous decomposition products:**
In the event of thermal decomposition, carbon oxides may be released.

11 Toxicological information

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

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

ATE (Acute Toxicity Estimate)

Inhalative	LC50/4 h	52.6 mg/l
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CAS: 78-10-4 tetraethyl silicate

Oral	LD50	6,270 mg/kg (rat)
Dermal	LD50	5,878 mg/kg (rabbit)
Inhalative	LC50/4 h	10 mg/l (ATE)
		10 mg/l (rat) (OECD TG403)

CAS: 2768-02-7 trimethoxyvinylsilane

Oral	LD50	7,130 mg/kg (rat)
Dermal	LD50	3,260 mg/kg (rabbit)
Inhalative	LC50/4 h	2,773 mg/l (rat)

- **Primary irritant effect:**
- **on the eye:** Irritating effect.
- **Sensitization:** Sensitization possible through skin contact.

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- **Additional toxicological information:**

- **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:**

CAS: 78-10-4 tetraethyl silicate

CL50 >245 mg/l (fish) (OECD TG 203 esposizione 96 h)

EC50 100 mg/l (algae) (OECD TG 201 Esposizione 72h)

>75 mg/l (daphnia) (OECD TG 202 esposizione 48 h)

NOEC >245 mg/l (fish) (OECD TG 203)

- **Persistence and degradability** Easily biodegradable

- **Behavior in environmental systems:**

- **Bioaccumulative potential** Non significant accumulation in organisms

- **Mobility in soil** No further relevant information available.

- **Additional ecological information:**

- **General notes:**

Water hazard class 1 (Self-assessment): slightly hazardous for water

Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Uncleaned packagings:**

- **Recommendation:**

Empty the containers before disposal. Do not reuse the emptied containers. Send the empty containers to recycling or to an authorized company in compliance with local and national regulations.

14 Transport information

- **UN-Number**

- **DOT, ADR, IMDG, IATA**

UN1993

- **UN proper shipping name**

- **DOT**

Flammable liquids, n.o.s. (Tetraethyl silicate, trimethoxyvinylsilane)

- **ADR**

1993 FLAMMABLE LIQUID, N.O.S.
(TETRAETHYL SILICATE, trimethoxyvinylsilane)

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· **IMDG, IATA** FLAMMABLE LIQUID, N.O.S. (TETRAETHYL SILICATE, trimethoxyvinylsilane)

· **Transport hazard class(es)**

· **DOT**



· **Class** 3 Flammable liquids
 · **Label** 3

· **ADR, 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

· **Hazard identification number (Kemler code):** 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:**

· **DOT**

· **Quantity limitations** On passenger aircraft/rail: 60 L
On cargo aircraft only: 220 L

· **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 LIQUID, N.O.S.
(TETRAETHYL SILICATE,
TRIMETHOXYVINYL SILANE), 3, III

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15 Regulatory information

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

No further relevant information available.

- **Sara**

- **Section 355 (extremely hazardous substances):**

None of the ingredients is listed.

- **Section 313 (Specific toxic chemical listings):**

None of the ingredients is listed.

- **TSCA (Toxic Substances Control Act):**

CAS: 7732-18-5	water, distilled, conductivity or of similar purity	ACTIVE
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CAS: 78-10-4	tetraethyl silicate	ACTIVE
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CAS: 2768-02-7	trimethoxyvinylsilane	ACTIVE
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- **Hazardous Air Pollutants**

None of the ingredients is listed.

- **Proposition 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.

- **Carcinogeny categories**

- **EPA (Environmental Protection Agency)**

None of the ingredients is listed.

- **TLV (Threshold Limit Value)**

None of the ingredients is listed.

- **NIOSH-Ca (National Institute for Occupational Safety and Health)**

None of the ingredients is listed.

- **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:**

1,1,3,3-Tetraoctyl-1-3-bis((2,2,3,5-oxotetramethylhexyl)oxy)distannoxane, dimer
trimethoxyvinylsilane

- **Hazard statements**

Flammable liquid and vapor.

Causes serious eye irritation.

May cause an allergic skin reaction.

May cause damage to organs.

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· **Precautionary statements**

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

Avoid breathing dust/fume/gas/mist/vapors/spray

Wear protective gloves / eye protection / face protection.

If on skin: Wash with plenty of water.

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

Call a poison center/doctor if you feel unwell.

In case of fire: Use CO₂, powder or water spray to extinguish.

Store in a well-ventilated place. Keep cool.

Dispose of contents/container in accordance with local/regional/national/international regulations.

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

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Classification according to Regulation (EC) No 1272/2008**

Procedure used for the classification of the mixture

Flam. Liq. 3, H226 - According to experimental data

Eye Irrit. 2, H319 - Calculation method

· **Contact:**

· **Date of preparation / last revision** 05/15/2025 / 4

· **Abbreviations and acronyms:**

ADR: Accord relatif au transport international 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

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)

VOC: Volatile Organic Compounds (USA, EU)

DNEL: Derived No-Effect Level (REACH)

PNEC: Predicted No-Effect Concentration (REACH)

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

Flammable Liquids 3: Flammable liquids – Category 3

Eye Irritation 2A: Serious eye damage/eye irritation – Category 2A

Sensitization - Skin 1: Skin sensitisation – Category 1

Specific Target Organ Toxicity - Single Exposure 2: Specific target organ toxicity (single exposure) – Category 2

· *** Data compared to the previous version altered.**