

Safety Data Sheet

acc. to OSHA HCS

Printing date 10/09/2018

Reviewed on 11/11/2015

1 Identification

- **Product identifier**
- **Trade name:** **ALT R304 resin**
- **Article number:** 172-730-026U
- **Application of the substance / the mixture** Sealing
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**

ALT Global, LLC
12 Dwight Place
Fairfield, NJ 07004
USA
Tel.: +1 973-287-6158
Fax: +1 973-287-6168
Internet: www.altglobal.com

- **Information department:**

Division product safety
Mr. Bonyadlou
Tel.: +1 973-287-6158
E-Mail: mbonyadlou@altglobal.com

- **Emergency telephone number:**

For Chemical Emergency
Spill Leak Fire Exposure or Accident
Call CHEMTREC Day or Night

DOMESTIC NORTH AMERICA 800-424-9300

2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS02 Flame

Flam. Liq. 2 H225 Highly flammable liquid and vapor.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.
Skin Sens. 1 H317 May cause an allergic skin reaction.
STOT SE 3 H335 May cause respiratory irritation.

- **Label elements**

- **GHS label elements**

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

- **Hazard pictograms**



GHS02 GHS07

- **Signal word** Danger

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

methyl methacrylate

(Contd. on page 2)

US

Safety Data Sheet acc. to OSHA HCS

Printing date 10/09/2018

Reviewed on 11/11/2015

Trade name: ALT R304 resin

(Contd. of page 1)

2-ethylhexyl acrylate

· **Hazard statements**

- H225 Highly flammable liquid and vapor.
- H315 Causes skin irritation.
- H317 May cause an allergic skin reaction.
- H335 May cause respiratory irritation.

· **Precautionary statements**

- P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
- P261 Avoid breathing vapours.
- P280 Wear protective gloves/ eye protection.
- P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
- P312 Call a poison center/doctor if you feel unwell.
- P403+P233 Store in a well-ventilated place. Keep container tightly closed.

· **Classification system:**

· **NFPA ratings (scale 0 - 4)**



Health = 2
 Fire = 3
 Reactivity = 2

· **HMIS-ratings (scale 0 - 4)**



Health = 2
 Fire = 3
 Reactivity = 2

· **Other hazards**

· **Results of PBT and vPvB assessment**

- **PBT:** Does not meet the PBT-criteria of Annex XIII of REACH (self assessment).
- **vPvB:** Does not meet the vPvB-criteria of Annex XIII of REACH (self assessment).

3 Composition/information on ingredients

· **Chemical characterization: Mixtures**

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

· **Dangerous components:**

CAS: 80-62-6 Index number: 607-035-00-6	methyl methacrylate	25-50%
CAS: 103-11-7 Index number: 607-107-00-7	2-ethylhexyl acrylate	10-25%
CAS: 13463-67-7	titanium dioxide	≥0.1-≤2.5%

4 First-aid measures

· **Description of first aid measures**

· **General information:**

- Immediately remove any clothing soiled by the product.
- Take affected persons out of danger area and lay down.
- Involve doctor immediately.

· **After inhalation:**

- In case of unconsciousness place patient stably in side position for transportation.
- Take affected persons into fresh air and keep quiet.
- Seek medical treatment.

(Contd. on page 3)

Safety Data Sheet acc. to OSHA HCS

Printing date 10/09/2018

Reviewed on 11/11/2015

Trade name: ALT R304 resin

(Contd. of page 2)

- **After skin contact:**
Immediately wash with water and soap and rinse thoroughly.
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:** Do not induce vomiting; immediately call for medical help.
- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**
Headache
Dizziness
Skin sensitization.
Irritant to skin, eyes and respiratory system.
- **Indication of any immediate medical attention and special treatment needed**
After inhalation, even in the absence of signs of disease, inhaled corticosteroid (eg Ventolair) give.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** CO₂, sand, extinguishing powder, 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.
Formation of toxic gases is possible during heating or in case of fire.
In case of fire, the following can be released:
Carbon monoxide (CO)
Nitrogen oxides (NOx)
Vapours are heavier than air.
Crawling vapors can result in greater distance from the ignition!
- **Advice for firefighters**
- **Protective equipment:**
Wear fully protective suit.
Wear self-contained respiratory protective device.
- **Additional information**
Cool endangered receptacles with water spray.
Collect contaminated fire fighting water separately. It must not enter the sewage system.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Ensure adequate ventilation



Keep away from ignition sources

- Use respiratory protective device against the effects of fumes/dust/aerosol.
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Do not allow to enter sewers/ surface or ground water.
Inform respective authorities in case of seepage into water course or sewage system.
- **Methods and material for containment and cleaning up:**
Do not flush with water or aqueous cleansing agents
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
- **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.

(Contd. on page 4)

Safety Data Sheet acc. to OSHA HCS

Printing date 10/09/2018

Reviewed on 11/11/2015

Trade name: ALT R304 resin

(Contd. of page 3)

· Protective Action Criteria for Chemicals

· PAC-1:

80-62-6	methyl methacrylate	17 ppm
103-11-7	2-ethylhexyl acrylate	15 ppm
13463-67-7	titanium dioxide	30 mg/m ³
	PEG 200 DMA	30 mg/m ³
1317-61-9	C.I.Pigment black 11	21 mg/m ³
20344-49-4	iron hydroxide oxide	24 mg/m ³
14808-60-7	Quartz (SiO ₂)	0.075 mg/m ³
1309-37-1	diiron trioxide	15 mg/m ³
108-65-6	2-methoxy-1-methylethyl acetate	50 ppm
123-86-4	n-butyl acetate	5 ppm
7631-86-9	silicon dioxide, chemically prepared	18 mg/m ³
21645-51-2	aluminium hydroxide	8.7 mg/m ³
1314-23-4	zirconium oxide	14 mg/m ³

· PAC-2:

80-62-6	methyl methacrylate	120 ppm
103-11-7	2-ethylhexyl acrylate	120 ppm
13463-67-7	titanium dioxide	330 mg/m ³
	PEG 200 DMA	330 mg/m ³
1317-61-9	C.I.Pigment black 11	230 mg/m ³
20344-49-4	iron hydroxide oxide	260 mg/m ³
14808-60-7	Quartz (SiO ₂)	33 mg/m ³
1309-37-1	diiron trioxide	360 mg/m ³
108-65-6	2-methoxy-1-methylethyl acetate	1,000 ppm
123-86-4	n-butyl acetate	200 ppm
7631-86-9	silicon dioxide, chemically prepared	740 mg/m ³
21645-51-2	aluminium hydroxide	73 mg/m ³
1314-23-4	zirconium oxide	110 mg/m ³

· PAC-3:

80-62-6	methyl methacrylate	570 ppm
103-11-7	2-ethylhexyl acrylate	150 ppm
13463-67-7	titanium dioxide	2,000 mg/m ³
	PEG 200 DMA	2,000 mg/m ³
1317-61-9	C.I.Pigment black 11	1,400 mg/m ³
20344-49-4	iron hydroxide oxide	1,600 mg/m ³
14808-60-7	Quartz (SiO ₂)	200 mg/m ³
1309-37-1	diiron trioxide	2,200 mg/m ³
108-65-6	2-methoxy-1-methylethyl acetate	5000* ppm
123-86-4	n-butyl acetate	3000* ppm
7631-86-9	silicon dioxide, chemically prepared	4,500 mg/m ³
21645-51-2	aluminium hydroxide	440 mg/m ³
1314-23-4	zirconium oxide	680 mg/m ³

US

(Contd. on page 5)

Safety Data Sheet acc. to OSHA HCS

Printing date 10/09/2018

Reviewed on 11/11/2015

Trade name: ALT R304 resin

(Contd. of page 4)

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Cool down container when heated. Cool containers exposed to heat with water. Emergency cooling must be provided in the event of an ambient fire. Keep container tightly closed to prevent heat build up (pressure increase). Avoid heat.
Do not refill residue into storage receptacles.
Ensure good ventilation/exhaustion at the workplace.
at least 7-fold air changes per hour
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Highly volatile, flammable constituents are released during processing.
Keep ignition sources away - Do not smoke.
Fumes can combine with air to form an explosive mixture.
Only explosion-proof equipment.
Protect against electrostatic charges.
Protect from heat.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:**
Store only in the original receptacle.
Store in a cool location.
- **Information about storage in one common storage facility:**
Store away from oxidizing agents.
Store away from foodstuffs.
- **Further information about storage conditions:**
Store in cool, dry conditions in well sealed receptacles.
Storage in a collecting room is required.
Store under lock and key and with access restricted to technical experts or their assistants only.
max. Storage temperature 30 ° C
Keep receptacle tightly sealed.
Protect from heat and direct sunlight.
- **Specific end use(s)** Building coating or sealing.

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:**
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.

80-62-6 methyl methacrylate (25-50%)

PEL	Long-term value: 410 mg/m ³ , 100 ppm
REL	Long-term value: 410 mg/m ³ , 100 ppm
TLV	Short-term value: 410 mg/m ³ , 100 ppm Long-term value: 205 mg/m ³ , 50 ppm
DSEN	

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

(Contd. on page 6)

— US —

Safety Data Sheet acc. to OSHA HCS

Printing date 10/09/2018

Reviewed on 11/11/2015

Trade name: ALT R304 resin

(Contd. of page 5)

- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**
 - Avoid contact with the eyes and skin.
 - Immediately remove all soiled and contaminated clothing.
 - Wash hands before breaks and at the end of work.
 - Keep away from foodstuffs, beverages and feed.
- **Breathing equipment:**
 - Ensure good ventilation.
 - In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
- **Protection of hands:**



Protective gloves

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

Preventive skin protection by use of skin-protecting agents is recommended.

After use of gloves apply skin-cleaning agents and skin cosmetics.

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

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

- **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**

Our Recommendation is mainly on a one-time use as a short-term protection Liquid splashes. For other applications, you should contact a glove manufacturer.
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 in work areas without heightened risk of injury (e.g. Laboratory) gloves made of the following material are suitable:**
Butyl rubber, BR
- **For the permanent contact gloves made of the following materials are suitable:** Butyl rubber, BR
- **Not suitable are gloves made of the following materials:** Leather gloves
- **Eye protection:**



EN-Standard: EN 166



Tightly sealed goggles

(Contd. on page 7)

Safety Data Sheet acc. to OSHA HCS

Printing date 10/09/2018

Reviewed on 11/11/2015

Trade name: ALT R304 resin

(Contd. of page 6)

· **Body protection:**



Protective work clothing

9 Physical and chemical properties

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

· **General Information**

· **Appearance:**

Form: Fluid

Color: Grey

· **Odor:** Ester-like

· **Odor threshold:** Not determined.

· **pH-value:** Not determined.

· **Change in condition**

Melting point/Melting range: Undetermined.

Boiling point/Boiling range: 101 °C (213.8 °F) (MMA)

· **Flash point:** 14 °C (57.2 °F) (DIN EN ISO 3680)

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

· **Ignition temperature:** 252 °C (485.6 °F) (2-EHA)

· **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: 1.7 Vol % (MMA)

Upper: 12.5 Vol % (MMA)

· **Vapor pressure at 20 °C (68 °F):** 38.7 hPa (29 mm Hg) (MMA)

· **Density at 20 °C (68 °F):** 1 g/cm³ (8.35 lbs/gal) (EN ISO 2811-1)

· **Evaporation rate** Not determined.

· **Solubility in / Miscibility with**

Water: Not miscible or difficult to mix.

· **Partition coefficient (n-octanol/water):** log Pow: 4,29 (2-EHA); (25 °C, OECD 107)
log Pow: 1,38 (MMA)

· **Viscosity:**

Dynamic at 20 °C (68 °F): 800 mPas (EN ISO 2555)

· **Solvent content:**

Organic solvents: 0.0 %

VOC content: 0.03 %

0.3 g/l / 0.00 lb/gal

Solids content: 47.8 %

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

Safety Data Sheet acc. to OSHA HCS

Printing date 10/09/2018

Reviewed on 11/11/2015

Trade name: ALT R304 resin

(Contd. of page 7)

10 Stability and reactivity

- **Reactivity** see Section 10.2
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
- **Possibility of hazardous reactions**
Exothermic reaction.
Reacts with peroxides and other radical forming substances.
A hazardous polymerization may occur after the exhaustion of the inhibitor.
- **Conditions to avoid** Avoid heat. Avoid direct sunlight.
- **Incompatible materials:** Heftige Reaktionen mit Peroxiden und anderen Reduktionsmittel
- **Hazardous decomposition products:**
No dangerous decomposition products used according to specifications.
- **Additional information:**
Emergency procedures will vary depending on individual circumstances. The customer should have a contingency plan to the workplace may be present.

11 Toxicological information

- **Information on toxicological effects** There were no toxicological findings to the mixture.
- **Acute toxicity:**

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

ATE (Acute Toxicity Estimate)

Oral	LD50	>24,044 mg/kg (rat)
Inhalative	LC50/4h	>69.8 mg/l (rat)

80-62-6 methyl methacrylate

Oral	LD50	>5,000 mg/kg (rat) (OECD 401)
	NOAEL	2,000 ppm (rat) drinking water, 6-2000 ppm Findings: No toxic effects
Dermal	LC50	>5,000 mg/kg (rabbit)
Inhalative	NOAEL	25 ppm (rat) 25 - 400 ppm Findings: Damage to mucous membranes in the nose at 400 ppm
	LC50/4h	29.8 mg/l (rat)

103-11-7 2-ethylhexyl acrylate

Oral	LD50	4,435 mg/kg (rat) (BASF-Test)
Dermal	LC50	7,520 mg/kg (hare)

13463-67-7 titanium dioxide

Oral	LD50	>20,000 mg/kg (rat)
Dermal	LC50	>10,000 mg/kg (hare)
Inhalative	LC50/4h	>6.82 mg/l (rat)

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** Sensitization possible through skin contact.
- **Other information (about experimental toxicology):**
Due to the high vapor pressure is a harmful concentration in the air quickly been reached. At high concentrations can occur narcotic effect.
- **Subacute to chronic toxicity:** not tested

(Contd. on page 9)

Safety Data Sheet acc. to OSHA HCS

Printing date 10/09/2018

Reviewed on 11/11/2015

Trade name: ALT R304 resin

(Contd. of page 8)

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

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

80-62-6	methyl methacrylate	3
103-11-7	2-ethylhexyl acrylate	3
13463-67-7	titanium dioxide	2B
14808-60-7	Quartz (SiO ₂)	1
1309-37-1	diiron trioxide	3
128-37-0	Butylated hydroxytoluene	3
7631-86-9	silicon dioxide, chemically prepared	3

· **NTP (National Toxicology Program)**

14808-60-7	Quartz (SiO ₂)	K
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· **OSHA-Ca (Occupational Safety & Health Administration)**

None of the ingredients is listed.

12 Ecological information

· **Toxicity**

80-62-6 methyl methacrylate

EC3/16h | 100 mg/l (Pseudomonas putida) (Cell proliferation inhibition test, Bringmann-Kühn)

· **Aquatic toxicity:**

80-62-6 methyl methacrylate

EC50/48h	69 mg/l (daphnia magna) (OECD 202)
LC50/96h	>79 mg/l (Rainbow trout) (OECD 203)
ErC50/72h	>110 mg/l (Pseudokirchneriella subcapitata) (OECD 201)
NOEC/72h	>110 mg/l (Selenastrum capricornutum) (OECD 201)
EC50/72h	>110 mg/l (Selenastrum capricornutum) (OECD 201)
NOEC	9.4 mg/l (Danio rerio) (OECD 210) fish early life stage test, 35 days
	37 mg/l (daphnia magna) (OECD 211) 21 days

103-11-7 2-ethylhexyl acrylate

other (28d)	>1,000 mg/kg (Soil microorganisms) (OECD 217) The product has not been tested. The statement has been derived from products of a similar structure or composition.
EC50/48h (static)	1.3 mg/l (daphnia magna) (OECD-Richtline 202) Part 1
LC50/96h (static)	1.81 mg/l (Rainbow trout) (OECD 203)
NOEC/21d	0.19 mg/l (daphnia magna) The details of the toxic effect relates to the analytically determined concentration. The product has not been tested. The statement has been derived from products of a similar structure or composition.
EC50/72h (static)	1.71 mg/l (scenedesmus subspicatus) (OECD 201) Die Angaben der toxischen Wirkung bezieht sich auf die analytisch ermittelte Konzentration.

· **Persistence and degradability** Easily biodegradable

(Contd. on page 10)

Safety Data Sheet acc. to OSHA HCS

Printing date 10/09/2018

Reviewed on 11/11/2015

Trade name: ALT R304 resin

(Contd. of page 9)

- **Other information:** The product is easily biodegradable.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** May be accumulated in organism
- **Mobility in soil**
MMA: A binding to the solid phase of soil, sediment and sewage sludge is not expected. From the water surface the substance is slowly evaporated into the atmosphere. Where the substance into the environment he verleiht preferably in the compartment into which it has emerged.
- 2-EHA: The product floats on water and does not dissolve. Adsorption on soil is not likely.
- **Additional ecological information:**
- **CSB-value:** 2-EHA: Theoretical oxygen demand (TOD) = 5.6 g/g
- **BSB5-value:** 0.14 g/g (MMA)
- **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water
Do not allow product to reach ground water, water course or sewage system.
- **Results of PBT and vPvB assessment**
- **PBT:** Does not meet the PBT-criteria of Annex XIII of REACH (self assessment).
- **vPvB:** Does not meet the vPvB-criteria of Annex XIII of REACH (self assessment).
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
Hazardous waste according to Waste Catalogue (EWC). If recycling is not possible, waste must be in compliance with local regulations to be removed.
- **Recommendation:**



Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

Uncured product residues are special waste.
Cured product residues are not hazardous waste.

- **Uncleaned packagings:**
- **Recommendation:**
This material and its container must be disposed of as hazardous waste.
Disposal must be made according to official regulations.

14 Transport information

<ul style="list-style-type: none"> · UN-Number · DOT, ADR, IMDG, IATA 	<p style="margin: 0;">UN1263</p>
<ul style="list-style-type: none"> · UN proper shipping name · DOT · ADR · IMDG, IATA 	<p style="margin: 0;">Paint 1263 Paint PAINT</p>
<ul style="list-style-type: none"> · Transport hazard class(es) · DOT 	<p style="margin: 0;">3 Flammable liquids</p>
	
<ul style="list-style-type: none"> · Class 	<p style="margin: 0;">3 Flammable liquids</p>

(Contd. on page 11)


Safety Data Sheet acc. to OSHA HCS

Printing date 10/09/2018

Reviewed on 11/11/2015

Trade name: ALT R304 resin

(Contd. of page 10)

· 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
· Danger code (Kemler):	-
· 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
· Remarks:	Classification according to viscosity clause (2.2.3.1.4) > 450 litres Packing group II
· 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
· Remarks:	Classification according to viscosity clause (2.3.2.3) > 30 litres Packing group II
· UN "Model Regulation":	UN 1263 PAINT, 3, III

15 Regulatory information

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

· Section 355 (extremely hazardous substances):

None of the ingredient is listed.

· Section 313 (Specific toxic chemical listings):

80-62-6 methyl methacrylate

· TSCA (Toxic Substances Control Act):

80-62-6 methyl methacrylate

103-11-7 2-ethylhexyl acrylate

13463-67-7 titanium dioxide

PEG 200 DMA

(Contd. on page 12)

Safety Data Sheet acc. to OSHA HCS

Printing date 10/09/2018

Reviewed on 11/11/2015

Trade name: ALT R304 resin

(Contd. of page 11)

1317-61-9	C.I.Pigment black 11
3147-75-9	2-(2H-benzotriazol-2-yl)-4-(1,1,3,3-tetramethylbutyl)phenol
20344-49-4	iron hydroxide oxide
14808-60-7	Quartz (SiO ₂)
8002-74-2	Paraffin waxes and Hydrocarbon waxes
1309-37-1	diiron trioxide
128-37-0	Butylated hydroxytoluene
108-65-6	2-methoxy-1-methylethyl acetate
	Silan, dichlordimethyl-, Reaktionsprodukte mit Siliciumdioxid
123-86-4	n-butyl acetate
7631-86-9	silicon dioxide, chemically prepared
21645-51-2	aluminium hydroxide
1314-23-4	zirconium oxide

· **Proposition 65**

· **Chemicals known to cause cancer:**

13463-67-7	titanium dioxide
14808-60-7	Quartz (SiO ₂)

· **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.

· **Carcinogenicity categories**

· **EPA (Environmental Protection Agency)**

80-62-6	methyl methacrylate	E, NL
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· **TLV (Threshold Limit Value established by ACGIH)**

80-62-6	methyl methacrylate	A4
13463-67-7	titanium dioxide	A4
14808-60-7	Quartz (SiO ₂)	A2
1309-37-1	diiron trioxide	A4
128-37-0	Butylated hydroxytoluene	A4
1314-23-4	zirconium oxide	A4

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

13463-67-7	titanium dioxide
14808-60-7	Quartz (SiO ₂)

· **National regulations:**

· **Information about limitation of use:**

Employment restrictions concerning young persons must be observed.
 Employment restrictions concerning pregnant and lactating women must be observed.

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

US

(Contd. on page 13)

Safety Data Sheet acc. to OSHA HCS

Printing date 10/09/2018

Reviewed on 11/11/2015

Trade name: **ALT R304 resin**

(Contd. of page 12)

* 16 Other information

These figures relate to the product as delivered.

Sector of Use

Relevant identified uses of the mixture

SU3 Industrial uses: Uses of substances as such or in preparations at industrial sites

SU19 Building and construction work

SU22 Professional uses: Public domain (administration, education, entertainment, services, craftsmen)

Uses advised against

SU21 Consumer uses: Private households / general public / consumers

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.

• Training hints

Teaching about hazards and precautions to hand the operating instructions (Technical Rule 555). Instruction must take place before the start of employment and at least annually thereafter.

• Date of preparation / last revision 10/09/2018 / 15

• Abbreviations and acronyms:

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

ICAO: International Civil Aviation Organisation

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)

VOC: Volatile Organic Compounds (USA, EU)

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. 2: Flammable liquids – Category 2

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Skin Sens. 1: Skin sensitisation – Category 1

STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

• Sources

www.gestis.de

www.echa.eu

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• * Data compared to the previous version altered.