according to Regulation (EC) No 1907/2006

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

1.1. Product identifier

artPreOpaque PLUS

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

Use of the substance/mixture

The product is intended for professional use.

Uses advised against

Do not use for private purposes (household).

1.3. Details of the supplier of the safety data sheet

Company name: Merz Dental GmbH

Street: Eetzweg 20

Place: D-24321 Lütjenburg (GERMANY)

Telephone: +49-(0)4381-403-0 Telefax: +49-(0)4381-403-100

e-mail: info@merz-dental.de

Contact person: Dipl. Chem Dr. Thomas Panther Telephone: +49-(0)4381-403-448

e-mail: Thomas.Panther@merz-dental.de

Internet: www.merz-dental.de

Responsible Department: Qualitätssicherung (Quality Assurance)

1.4. Emergency telephone +49-(0)551-19240 (Giftinformationszentrum-Nord)

number:

Further Information

none

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Regulation (EC) No. 1272/2008

Hazard categories:

Flammable liquid: Flam. Liq. 2 Skin corrosion/irritation: Skin Irrit. 2

Respiratory or skin sensitisation: Skin Sens. 1

Specific target organ toxicity - single exposure: STOT SE 3

Hazard Statements:

Highly flammable liquid and vapour.

Causes skin irritation.

May cause an allergic skin reaction. May cause respiratory irritation.

2.2. Label elements

Regulation (EC) No. 1272/2008

Hazard components for labelling

methyl 2-methylprop-2-enoate; methyl 2-methylpropenoate; methyl methacrylate

Signal word: Danger

Pictograms:





Hazard statements

H225 Highly flammable liquid and vapour.

H315 Causes skin irritation.

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H317 May cause an allergic skin reaction. H335 May cause respiratory irritation.

Precautionary statements

P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No

smokina.

P261 Avoid breathing dust/fume/gas/mist/vapours/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P333+P313 If skin irritation or rash occurs: Get medical advice/attention.

Additional advice on labelling

Ausnahme von Artikel 17 [(Artikel 29 Absatz 2)]: Kennzeichnung von Verpackungen bei einem Inhalt von < 125 ml: Angabe der gefahrbestimmenden Komponente, Signalwort, Piktogramme, H317, P280, P333+P313.

2.3. Other hazards

Polymerization with heat evolution may occur in the presence of radical forming substances (e.g. peroxides), reducing substances, and/or heavy metal ions.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

METHYL METHACRYLATE

Hazardous components

CAS No	Chemical name			Quantity	
	EC No	EC No Index No REACH No			
	Classification according to Regulation (EC) No. 1272/2008 [CLP]				
80-62-6	methyl 2-methylprop-2-enoate; me	methyl 2-methylprop-2-enoate; methyl 2-methylpropenoate; methyl methacrylate			
	201-297-1	7-1 607-035-00-6			
	Flam. Liq. 2, STOT SE 3, Skin Irrit. 2, Skin Sens. 1; H225 H335 H315 H317				

Full text of H and EUH statements: see section 16.

Further Information

none

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Take off contaminated clothing and wash it before reuse. IF exposed or concerned: Get medical advice/attention.

After inhalation

Provide fresh air. When in doubt or if symptoms are observed, get medical advice.

After contact with skin

After contact with skin, wash immediately with polyethylene glycol, followed by plenty of water. Take off immediately all contaminated clothing and wash it before reuse. Medical treatment necessary.

After contact with eyes

After contact with the eyes, rinse with water with the eyelids open for a sufficient length of time, then consult an ophthalmologist immediately. Rinse immediately carefully and thoroughly with eye-bath or water. If eye irritation persists: Get medical advice/attention.

After ingestion

Observe risk of aspiration if vomiting occurs. Rinse mouth immediately and drink plenty of water. If swallowed, do not induce vomiting: seek medical advice immediately and show this container or label.

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

Causes skin and eye irritation. Drowsiness, Headache, Skin sensitisation.

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

Treat symptomatically. When in doubt or if symptoms are observed, get medical advice.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Carbon dioxide (CO2), Foam, Extinguishing powder.

Unsuitable extinguishing media

Water

5.2. Special hazards arising from the substance or mixture

Highly flammable. Vapours can form explosive mixtures with air. Hazardous decomposition products, Carbon dioxide (CO2), Carbon monoxide

5.3. Advice for firefighters

Wear a self-contained breathing apparatus and chemical protective clothing. Full protection suit.

Additional information

Use water spray jet to protect personnel and to cool endangered containers. Suppress gases/vapours/mists with water spray jet. Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Remove all sources of ignition. Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Use personal protection equipment. Wear breathing apparatus if exposed to vapours/dusts/aerosols.

6.2. Environmental precautions

Do not allow uncontrolled discharge of product into the environment. Danger of explosion Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

Absorb with liquid-binding material (e.g. sand, diatomaceous earth, acid- or universal binding agents). Treat the recovered material as prescribed in the section on waste disposal.

6.4. Reference to other sections

Safe handling: see section 7

Personal protection equipment: see section 8

Disposal: see section 13

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray. Keep container tightly closed. Provide adequate ventilation as well as local exhaustion at critical locations.

Advice on protection against fire and explosion

Keep away from sources of ignition. - No smoking. Take precautionary measures against static discharges. Vapours can form explosive mixtures with air. Use explosion-proof machinery, apparatus, ventilation facilities, tools etc.

Further information on handling

Observe instructions for use. To avoid risks to man and the environment, comply with the instructions for use.

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7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep container tightly closed. Keep in a cool, well-ventilated place. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.

May cause decomposition by long-term light influence. Keep only in the original container at a temperature not exceeding 25 °C (to be specified by the manufacturer). Polymerization with heat evolution may occur in the presence of radical forming substances (e.g. peroxides), reducing substances, and/or heavy metal ions.

Advice on storage compatibility

Do not store together with: Oxidising agent. Pyrophoric or self-heating substances. To follow: Storage class

Further information on storage conditions

Can polymerise exothermically in the absence of stabilisers, particularly in acid conditions or if shelf life exceeded. Can polymerise exothermically if heated, exposed to air, sunlight or by addition or free radical initiators.

7.3. Specific end use(s)

Observe instructions for use

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m³	fibres/ml	Category	Origin
80-62-6	Methyl methacrylate	50	208		TWA (8 h)	WEL
		100	416	Ì	STEL (15 min)	WEL

Additional advice on limit values

Recommended monitoring procedures: "NIOSH Manual of Analytical Methods", National Institute for Occupational Safety and Health

8.2. Exposure controls









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Appropriate engineering controls

If handled uncovered, arrangements with local exhaust ventilation have to be used. Do not breathe gas/fumes/vapour/spray. If handled uncovered, arrangements with local exhaust ventilation should be used if possible. If local exhaust ventilation is not possible or not sufficient, the entire working area must be ventilated by technical means. Use explosion-proof machinery, apparatus, ventilation facilities, tools etc. Ensure that fresh air is supplied to the breathing zone of the operator and exhaust air is removed in his back! Use an "effective exhaust ventilation system" according to 2001/59/EC (Annex 7A)..

Protective and hygiene measures

Remove contaminated, saturated clothing immediately. Draw up and observe skin protection programme. Wash hands and face before breaks and after work and take a shower if necessary. When using do not eat or drink. Apply skin care products after work. When using do not eat, drink, smoke, sniff. Separate storage of work clothes. Used working clothes should not be worn outside the work area. Minimum standard for preventive measures while handling with working materials are specified in the TRGS 500. Special regulations for working in moisture are specified in the TRGS 531.

Eye/face protection

Wear eye/face protection.

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Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. The quality of the protective gloves resistant to chemicals must be chosen as a function of the specific working place concentration and quantity of hazardous substances. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. Wear suitable gloves. Suitable material: Butyl caoutchouc (butyl rubber) Breakthrough time (maximum wearing time): 60 min. (EN 374). When handling with chemical substances, protective gloves must be worn with the CE-label including the four control digits. Wear cotton undermitten if possible. Breakthrough times and swelling properties of the material must be taken into consideration.

Skin protection

Flame-retardant protective clothing. Wear anti-static footwear and clothing Wear suitable protective clothing.

Respiratory protection

In case of inadequate ventilation wear respiratory protection. Use only respiratory protection equipment with CE-symbol including four digit test number. Short-term filter machine, gas filter A (identification colour: brown). Only use filter machines when the surrounding atmosphere contains at least 17% vol. oxygen. Only use filter machines when the surrounding atmosphere contains at least 17% vol. oxygen.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state: liquid
Colour: colourless
Odour: characteristic

Test method

pH-Value: not applicable

Changes in the physical state

Melting point:not determinedInitial boiling point and boiling range:~100 °CSublimation point:not applicableSoftening point:not applicablePour point:not applicable

Flash point: ~10 °C DIN 51755

Sustaining combustion: Sustaining combustion

Flammability not determined

Solid: not applicable
Gas: not applicable

Explosive properties

The accumulation in lowlying or closen rooms can cause increased danger of fire and explosion.

Lower explosion limits: 2,1 vol. % Upper explosion limits: 12,5 vol. %

Ignition temperature: ~ 430 °C DIN 51794

Auto-ignition temperature

Solid: not applicable
Gas: not applicable

Decomposition temperature: not determined

Oxidizing properties

Highly flammable.

Vapour pressure: ~ 38 hPa

(at 20 °C)

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Density (at 20 °C): $\sim 0.94 \text{ g/cm}^3$ Bulk density: not applicable Water solubility: $\sim 15 \text{ g/L}$

(at 20 °C)

Solubility in other solvents

miscible with most organic solvents

Partition coefficient: log Pow ~ 1,4

Viscosity / dynamic: ~ 0,6 mPa⋅s Brookfield

(at 20 °C)

Viscosity / kinematic: ~ 6 mm²/s

(at 20 °C)

Flow time: not determined

Vapour density: > 1

(at 20 °C)

Evaporation rate: not determined Solvent separation test: not determined Solvent content: $\sim 99.7 \%$

9.2. Other information

Solid content: < 0,3 %

none

SECTION 10: Stability and reactivity

10.1. Reactivity

Highly flammable. No hazardous reaction when handled and stored according to provisions.

10.2. Chemical stability

May cause decomposition by long-term light influence. Stabiliser can lose its effectiveness if stored over a long period of time.

10.3. Possibility of hazardous reactions

Polymerization with heat evolution may occur in the presence of radical forming substances (e.g. peroxides), reducing substances, and/or heavy metal ions. Can polymerise exothermically if heated, exposed to air, sunlight or by addition or free radical initiators.

10.4. Conditions to avoid

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Vapours can form explosive mixtures with air. Polymerization with heat evolution may occur in the presence of radical forming substances (e.g. peroxides), reducing substances, and/or heavy metal ions. Do not mix with peroxide activators and reducing agents. Do not mix with acids.

10.5. Incompatible materials

Radical former

Reducing agent

Heavy metals

Peroxides

Oxidising agent

10.6. Hazardous decomposition products

No known hazardous decomposition products.

Further information

none

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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Toxicocinetics, metabolism and distribution

Methyl methacrylate is rapidly metabolized.

Acute toxicity

Based on available data, the classification criteria are not met.

Data apply to the main component.

CAS No	Chemical name					
	Exposure route	Dose		Species	Source	Method
80-62-6	methyl 2-methylprop-2-enoate; methyl 2-methylpropenoate; methyl methacrylate					
	oral	LD50 mg/kg	> 5000	Rat	OECD 401	
	dermal	LD50 mg/kg	> 5000	Rabbit		
	inhalative (4 h) vapour	LC50	29,8 mg/l	Rat		

Irritation and corrosivity

Causes skin irritation.

Serious eye damage/eye irritation: Based on available data, the classification criteria are not met. rabbit, not irritating - slightly irritating. If contact with skin is prolonged and/or frequent, irritations cannot be excluded. Skin irritant Category 2 (UN-GHS).

Sensitising effects

May cause an allergic skin reaction. (methyl 2-methylprop-2-enoate; methyl 2-methylpropenoate; methyl methacrylate)

Respiratory or skin sensitisation mouse, LLNA (Local Lymph Node Assay), (own study): sensitizing. man, In humans various types of allergic reactions have been observed (symptoms: headache, eye irritations, skin affections). Skin Sensitisation Category 1B (UN-GHS) People who suffer from skin sensitazion problems, asthma, allergies, chronic or recurring respiratory illnesses should not be deployed in any process using this preparation.

Carcinogenic/mutagenic/toxic effects for reproduction

Based on available data, the classification criteria are not met.

Mutagenicity assessment: Positive as well as negative results in in vitro mutagenicity/ genotoxicity tests. No experimental indication of genotoxicity in vivo available. In summary not mutagenic according to internationally accepted criteria.

STOT-single exposure

May cause respiratory irritation. (methyl 2-methylprop-2-enoate; methyl 2-methylpropenoate; methyl methacrylate)

respiratory tract, (irritation). Specific target organ toxicity – single exposure Category 3 (UN-GHS).

STOT-repeated exposure

Based on available data, the classification criteria are not met.

STOT-repeated exposure: (structure-activity-relationships)

Aspiration hazard

Based on available data, the classification criteria are not met.

no evidence for hazardous properties.

Specific effects in experiment on an animal

There are no data available on the mixture itself.

Additional information on tests

The mixture is classified as hazardous according to regulation (EC) No 1272/2008 [CLP].

Practical experience

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Observations relevant to classification

May cause an allergic skin reaction. May produce an allergic reaction.

Other observations

none

Further information

Repeated exposure may cause skin dryness or cracking. Frequently or prolonged contact with skin may cause dermal irritation. Do not breathe gas/vapour/aerosol.

SECTION 12: Ecological information

12.1. Toxicity

Hazardous to the aquatic environment: Category 3 (UN-GHS)

CAS No	Chemical name						
	Aquatic toxicity	Dose		[h] [d]	Species	Source	Method
80-62-6	methyl 2-methylprop-2-enoate; methyl 2-methylpropenoate; methyl methacrylate						
	Acute fish toxicity	LC50 mg/l	> 79		Oncorhynchus mykiss (Rainbow trout)	OECD 203	
	Acute algae toxicity	ErC50 mg/l	> 110		Selenastrum capricornutum	OECD 201	
	Acute crustacea toxicity	EC50	69 mg/l		Daphnia magna (Big water flea)	OECD 202	

12.2. Persistence and degradability

Readily biodegradable, according to appropriate OECD test. The substance Readily biodegradable (according to OECD criteria). OECD 301 C, 14 d: 94 %

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
80-62-6	methyl 2-methylprop-2-enoate; methyl 2-methylpropenoa	ate; methyl methacrylate	е	
	OECD 301C/ ISO 9408/ EEC 92/69/V, C.4-F 94 % 14 SDB Evonik			
	Readily biodegradable (according to OECD criteria).			

12.3. Bioaccumulative potential

Based on the n-octanol/water partition coefficient significant accumulation in organisms is not expected.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
80-62-6	methyl 2-methylprop-2-enoate; methyl 2-methylpropenoate; methyl methacrylate	1,38

12.4. Mobility in soil

Binding to the solid soil phase, sediment or clarification sludge is not expected. The substance evaporates gradually into the atmosphere from the surface of the water. If the substance does get into the environment, it tends to remain in the compartment it was discharged into.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Other adverse effects

There are no data available on the preparation/mixture itself.

Further information

Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

according to Regulation (EC) No 1907/2006

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Advice on disposal

Do not allow to enter into surface water or drains. Dispose of waste according to applicable legislation. Waste for disposal are exempt from classification and labeling under chemical law (for Germany only). Evidence for disposal must be provided. Delivery to an approved waste disposal company.

Waste disposal number of waste from residues/unused products

 $070208 \qquad \text{WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of plastics, synthetic} \\$

rubber and man-made fibres; other still bottoms and reaction residues; hazardous waste

Waste disposal number of used product

070208 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of plastics, synthetic

rubber and man-made fibres; other still bottoms and reaction residues; hazardous waste

Waste disposal number of contaminated packaging

070208 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of plastics, synthetic

rubber and man-made fibres; other still bottoms and reaction residues; hazardous waste

Contaminated packaging

Wash with plenty of water. Completely emptied packages can be recycled. Contaminated packages must be completely emptied and can be re-used following proper cleaning.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number: UN 1247

14.2. UN proper shipping name: METHYL METHACRYLATE MONOMER, STABILIZED

14.3. Transport hazard class(es):314.4. Packing group:IIHazard label:3



Classification code: F1
Limited quantity: 1 L
Transport category: 2
Hazard No: 339
Tunnel restriction code: D/E

Other applicable information (land transport)

F2

Inland waterways transport (ADN)

14.1. UN number: UN 1247

14.2. UN proper shipping name: METHYL METHACRYLATE MONOMER, STABILIZED

14.3. Transport hazard class(es):314.4. Packing group:IIHazard label:3



Classification code: F1
Limited quantity: 1 L

Other applicable information (inland waterways transport)

E2

Marine transport (IMDG)

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14.1. UN number: UN 1247

14.2. UN proper shipping name: METHYL METHACRYLATE MONOMER, STABILIZED

14.3. Transport hazard class(es):314.4. Packing group:IIHazard label:3



Special Provisions: Limited quantity: 1 L
EmS: F-E, S-D

Other applicable information (marine transport)

F2

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number: UN 1247

14.2. UN proper shipping name: METHYL METHACRYLATE MONOMER, STABILIZED

14.3. Transport hazard class(es):314.4. Packing group:IIHazard label:3



Limited quantity Passenger: 1 L

IATA-packing instructions - Passenger: 353
IATA-max. quantity - Passenger: 5 L
IATA-packing instructions - Cargo: 364
IATA-max. quantity - Cargo: 60 L

Other applicable information (air transport)

Passenger-LQ: Y341

E2

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

Danger releasing substance: See section 14.2.

14.6. Special precautions for user

Warning: Combustible liquid. See section 14.2.

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

see regulatory information

Other applicable information

The substance evaporates gradually into the atmosphere from the surface of the Further information Do not packing together with acrylate polymer powder!

SECTION 15: Regulatory information

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

EU regulatory information

2010/75/EU (VOC): 100 % (940 g/l) 2004/42/EC (VOC): 100 % (940 g/l)

according to Regulation (EC) No 1907/2006

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Additional information

none

National regulatory information

Employment restrictions: Observe restrictions to employment for juvenils according to the 'juvenile

work protection guideline' (94/33/EC).

Water contaminating class (D): 1 - slightly water contaminating

Skin resorption/Sensitization: Causes allergic hypersensitivity reactions.

Biocide registry number: not applicable

Additional information

none

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 2,4,5,6,7,8,9,10,11,12,13,14,15,16.

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

IATA: International Air Transport Association

GHS: Globally Harmonized System of Classification and Labelling of Chemicals EINECS: European Inventory of Existing Commercial Chemical Substances

ELINCS: European List of Notified Chemical Substances

CAS: Chemical Abstracts Service LC50: Lethal concentration, 50%

LD50: Lethal dose, 50%

Classification for mixtures and used evaluation method according to Regulation (EC) No. 1272/2008 [CLP]

Classification	Classification procedure				
Flam. Liq. 2; H225	On basis of test data				
Skin Irrit. 2; H315	Calculation method				
Skin Sens. 1; H317	Calculation method				
STOT SE 3; H335	Calculation method				

Relevant H and EUH statements (number and full text)

H225 Highly flammable liquid and vapour.

H315 Causes skin irritation.

H317 May cause an allergic skin reaction. H335 May cause respiratory irritation.

Further Information

The information is based on present level of our knowledge. It does not, however, give assurances of product properties and establishes no contract legal rights. The receiver of our product is singulary responsible for adhering to existing laws and regulations.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)