

Safety Data Sheet

according to Regulation (EC) No 1907/2006

artEnamel Polymer PLUS

Revision date: 21.06.2018

Product code: artEnamelTC

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SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1. Product identifier**

artEnamel Polymer PLUS

Further trade names

- artEnamel, Colour E1, E2, E3, E4, TC

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 number:

+49-(0)551-19240 (Giftinformationszentrum-Nord)

Further Information

none

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Regulation (EC) No. 1272/2008**

This mixture is not classified as hazardous in accordance with Regulation (EC) No. 1272/2008.

2.2. Label elements**Regulation (EC) No. 1272/2008****Special labelling of certain mixtures**

EUH208	Contains dibenzoyl peroxide; benzoyl peroxide, methyl 2-methylprop-2-enoate; methyl 2-methylpropenoate; methyl methacrylate. May produce an allergic reaction.
EUH210	Safety data sheet available on request.

2.3. Other hazards

No information available.

SECTION 3: Composition/information on ingredients**3.2. Mixtures****Chemical characterization**

POLYMETHYL METHACRYLATE

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Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification according to Regulation (EC) No. 1272/2008 [CLP]			
94-36-0	dibenzoyl peroxide; benzoyl peroxide			< 0,5 %
	202-327-6	617-008-00-0		
	Org. Perox. B, Eye Irrit. 2, Skin Sens. 1; H241 H319 H317			
80-62-6	methyl 2-methylprop-2-enoate; methyl 2-methylpropenoate; methyl methacrylate			< 0,2 %
	201-297-1	607-035-00-6	01-2119452498-28	
	Flam. Liq. 2, Skin Irrit. 2, Skin Sens. 1, STOT SE 3; H225 H315 H317 H335			
96-33-3	methyl acrylate, methyl propenoate			< 0,001 %
	202-500-6	607-034-00-0		
	Flam. Liq. 2, Acute Tox. 4, Acute Tox. 4, Acute Tox. 4, Eye Irrit. 2, STOT SE 3, Skin Irrit. 2, Skin Sens. 1; H225 H332 H312 H302 H319 H335 H315 H317			

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

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

Change contaminated clothing.

After inhalation

Provide fresh air. In all cases of doubt, or when symptoms persist, seek medical advice.

After contact with skin

Wash with plenty of water. Take off contaminated clothing and wash it before reuse.

After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water. In case of eye irritation consult an ophthalmologist.

After ingestion

Rinse immediately carefully and thoroughly with eye-bath or water. In case of eye irritation consult an ophthalmologist.

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

No information available.

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

Treat symptomatically.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Extinguishing powder, Carbon dioxide (CO₂), Water spray jet, Foam.

Unsuitable extinguishing media

High power water jet

5.2. Special hazards arising from the substance or mixture

This material is combustible, but will not ignite readily. In case of fire may be liberated: Carbon dioxide (CO₂), Carbon monoxide

5.3. Advice for firefighters

In case of fire: Wear self-contained breathing apparatus.

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Additional information

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

Avoid dust formation. Do not breathe dust. Wear breathing apparatus if exposed to vapours/dusts/aerosols.

Wear personal protection equipment. Special danger of slipping by leaking/spilling product.

6.2. Environmental precautions

Clean contaminated articles and floor according to the environmental legislation. Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up

Take up mechanically. 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

Measures to prevent aerosol and dust generation.

Advice on protection against fire and explosion

No special fire protection measures are necessary.

Further information on handling

Dust should be exhausted directly at the point of origin.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Keep the packing dry and well sealed to prevent contamination and absorption of humidity.

Advice on storage compatibility

No special measures are necessary.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Exposure limits (EH40)

CAS No	Substance	ppm	mg/m ³	fibres/ml	Category	Origin
94-36-0	Dibenzoyl peroxide	-	5		TWA (8 h)	WEL
		-	-		STEL (15 min)	WEL
96-33-3	Methyl acrylate	5	18		TWA (8 h)	WEL
		10	36		STEL (15 min)	WEL
80-62-6	Methyl methacrylate	50	208		TWA (8 h)	WEL
		100	416		STEL (15 min)	WEL

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DNEL/DMEL values

CAS No	Substance			
DNEL type		Exposure route	Effect	Value
94-36-0	dibenzoyl peroxide; benzoyl peroxide			
Consumer DNEL, long-term		inhalation	systemic	2,9 mg/m³
Worker DNEL, long-term		dermal	systemic	6,6 mg/kg bw/day
Consumer DNEL, long-term		oral	systemic	1,65 mg/kg bw/day
Worker DNEL, long-term		inhalation	systemic	11,75 mg/m³
Consumer DNEL, long-term		dermal	systemic	3,3 mg/kg bw/day
80-62-6	methyl 2-methylprop-2-enoate; methyl 2-methylpropenoate; methyl methacrylate			
Worker DNEL, long-term		inhalation	local	210 mg/m³
Worker DNEL, long-term		dermal	systemic	13,67 mg/kg bw/day

PNEC values

CAS No	Substance		Value
	Environmental compartment		
94-36-0	dibenzoyl peroxide; benzoyl peroxide		
Freshwater			0,000602 mg/l
Marine water			0,000602 mg/l
Freshwater sediment			0,338 mg/kg
Micro-organisms in sewage treatment plants (STP)			0,35 mg/l
Soil			0,0758 mg/kg
80-62-6	methyl 2-methylprop-2-enoate; methyl 2-methylpropenoate; methyl methacrylate		
Freshwater			< 0,94 mg/l
Marine water			< 0,94 mg/l
Soil			-----
Air			-----

Additional advice on limit values

Monitoring and observation processes: "NIOSH Manual of Analytical Methods", National Institute for Occupational Safety and Health

8.2. Exposure controls



Appropriate engineering controls

Monitoring and observation processes: "NIOSH Manual of Analytical Methods", National Institute for Occupational Safety and Health

Protective and hygiene measures

Take off contaminated clothing. Wash hands before breaks and after work. When using do not eat or drink.

Eye/face protection

Wear eye/face protection.

Hand protection

When handling with chemical substances, protective gloves must be worn with the CE-label including the four

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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.

Skin protection

Wear suitable protective clothing.

Respiratory protection

If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn. Respiratory protection necessary at: exceeding exposure limit values. Use only respiratory protection equipment with CE-symbol including four digit test number. Observe the wear time limits according GefStoffV in combination with the rules for using respiratory protection apparatus (BGR 190). The filter class must be suitable for the maximum contaminant concentration (gas/vapour/aerosol/particulates) that may arise when handling the product. If the concentration is exceeded, self-contained breathing apparatus must be used. Half-face mask or quarter facepiece: maximum use concentration for substances with exposure limits: P1 filter: up to a max. of 4 times the exposure limit. P2 filter: up to a max. of 10 times the exposure limit. P3 filter: up to a max. of 30 times the expo.

Quarter-face mask (DIN EN 140) / Half-face mask (DIN EN 140)

Environmental exposure controls

Do not allow uncontrolled discharge of product into the environment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	Powder	
Colour:	whitish / light yellow	
Odour:	odourless	
		Test method
pH-Value:	not applicable	
Changes in the physical state		
Melting point:	not applicable	
Initial boiling point and boiling range:	not determined	
Sublimation point:	not applicable	
Softening point:	ca. 110 °C	
Pour point:	not applicable	
Flash point:	>250 °C	ASTM D 1929
Sustaining combustion:	No data available	
Flammability		
Solid:	not determined	
Gas:	not applicable	
Explosive properties		
Danger of dust explosion.		
Lower explosion limits:	not determined	not determined
Upper explosion limits:	not determined	not determined
Ignition temperature:	> 400 °C	ASTM D 1929
Auto-ignition temperature		
Solid:	not determined	
Gas:	not applicable	
Decomposition temperature:	not determined	

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Oxidizing properties

Not oxidizing.

Vapour pressure: not determined

Vapour pressure: not applicable

Density: not determined

Bulk density: 680-730 kg/m³

Water solubility: insoluble

Solubility in other solvents

not determined

Partition coefficient: not determined

Viscosity / dynamic: not applicable

Viscosity / kinematic: not applicable

Flow time: not applicable

Vapour density: not determined

Evaporation rate: not determined

Solvent separation test: not applicable

Solvent content: not applicable

9.2. Other information

Solid content: > 99%

none

SECTION 10: Stability and reactivity**10.1. Reactivity**

No hazardous reaction when handled and stored according to provisions.

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

Decomposition temperature (°C): > 250

10.3. Possibility of hazardous reactions

No known hazardous reactions.

10.4. Conditions to avoid

Decomposition takes place from temperatures above: 250 °C

10.5. Incompatible materials

Oxidising agent

10.6. Hazardous decomposition products

Thermal decomposition can lead to the escape of irritating gases and vapours.

Hazardous decomposition products: SECTION 8: Exposure controls/personal protection

Further information

none

SECTION 11: Toxicological information**11.1. Information on toxicological effects****Toxicokinetics, metabolism and distribution**

No information available.

Acute toxicity

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

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

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
94-36-0	dibenzoyl peroxide; benzoyl peroxide				
	oral	LD50 > 2000 mg/kg	Mouse	Nier, Korea 2001	OECD 401
	inhalative aerosol	LC50 > 24300 mg/l	Rat		
80-62-6	methyl 2-methylprop-2-enoate; methyl 2-methylpropenoate; methyl methacrylate				
	oral	LD50 7900 mg/kg	Rat	J. Ind. Hyg. Toxicol	standard acute metho
	dermal	LD50 > 5000 mg/kg	Rabbit	REACH Dossier	OECD 402
	inhalative (4 h) vapour	LC50 29,8 mg/l	Rat	REACH Dossier	standard acute metho
96-33-3	methyl acrylate, methyl propenoate				
	oral	LD50 768 mg/kg	Rat	REACH Dossier	OECD 401
	dermal	LD50 1250 mg/kg	Rabbit	REACH Dossier	not specified
	inhalative (4 h) vapour	LC50 4,75 mg/l	Rat	GESTIS	
	inhalative aerosol	ATE 1,5 mg/l			

Irritation and corrosivity

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

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

Sensitising effects

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

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 sensitization problems, asthma, allergies, chronic or recurring respiratory illnesses should not be deployed in any process using this preparation. May cause an allergic skin reaction.

Carcinogenic/mutagenic/toxic effects for reproduction

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

none

STOT-single exposure

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

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

STOT-repeated exposure

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

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

Aspiration hazard

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

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

Additional information on tests

The mixture is classified as not hazardous according to Directive 1999/45/EC.

Practical experience

Observations relevant to classification

No information available.

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Other observations

No information available.

Further information

The ingredients in this preparation do not meet the criteria for classification as CMR category 1 or 2 according to 67/548/EEC. The ingredients in this mixture do not meet the criteria for classification as CMR category 1 A or 1B according to CLP. Toxicological data are not available. People who suffer from skin sensitization problems, asthma, allergies, chronic or recurring respiratory illnesses should not be deployed in any process using this preparation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

SECTION 12: Ecological information

12.1. Toxicity

According to the criteria of the European classification and labelling system, the substance/the product has not to be labelled as "dangerous for the environment".

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
94-36-0	dibenzoyl peroxide; benzoyl peroxide					
	Acute fish toxicity	LC50 0,24 mg/l	96 h	Oryzias latipes (Ricefish)	Nier, Korea 2002c	OECD 203
	Acute algae toxicity	ErC50 0,44 mg/l	72 h	Selenastrum capricornutum	Nier, Korea 2002f	OECD 201
	Acute crustacea toxicity	EC50 0,07 mg/l	48 h	Daphnia pulex (water flea)	Nier, Korea 2002g	OECD 202
	Algae toxicity	NOEC 0,02 mg/l	3 d	Pseudokirchneriella subcapitata	REACH Dossier	EU Method C.3
	Crustacea toxicity	NOEC 0,001 mg/l	21 d	Daphnia pulex (water flea)	REACH Dossier	OECD 211
	Acute bacteria toxicity	0,30 g O2/g (0,35 mg/l)	0,5 h	activated sludge	REACH Dossier	OECD 209
80-62-6	methyl 2-methylprop-2-enoate; methyl 2-methylpropenoate; methyl methacrylate					
	Acute fish toxicity	LC50 > 79 mg/l	96 h	Oncorhynchus mykiss (Rainbow trout)	REACH Dossier	EPA OTS 797.1400
	Acute algae toxicity	ErC50 > 110 mg/l	72 h	Pseudokirchneriella subcapitata	REACH Dossier	OECD 201
	Acute crustacea toxicity	EC50 69 mg/l	48 h	Daphnia magna (Big water flea)	REACH Dossier	EPA OTS 797.1300
96-33-3	methyl acrylate, methyl propenoate					
	Acute fish toxicity	LC50 3,4 mg/l	96 h	Oncorhynchus mykiss (Rainbow trout)	REACH Dossier	OECD 203
	Acute algae toxicity	ErC50 2,02 mg/l	72 h	Pseudokirchneriella subcapitata	REACH Dossier	OECD 201
	Acute crustacea toxicity	EC50 2,6 mg/l	48 h	Daphnia magna (Big water flea)	REACH Dossier	OECD 202
	Fish toxicity	NOEC 2,8 mg/l	4 d	Oncorhynchus mykiss (Rainbow trout)	REACH Dossier	OECD 203
	Crustacea toxicity	NOEC 0,88 mg/l	3 d	Daphnia magna (Big water flea)	REACH Dossier	OECD 202

12.2. Persistence and degradability

The product has not been tested.

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CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
94-36-0	dibenzoyl peroxide; benzoyl peroxide			
	OECD 301D/ EEC 92/69/V, C.4-E	71 %	28	REACH Dossier
	Readily biodegradable (according to OECD criteria).			
80-62-6	methyl 2-methylprop-2-enoate; methyl 2-methylpropenoate; methyl methacrylate			
	OECD 301C/ ISO 9408/ EEC 92/69/V, C.4-F	94 %	14	Publication
	Readily biodegradable (according to OECD criteria).			
	EPA, title 40 Code of Federal Regulations Part 160	> 99 %	2	40 CFR 160
	Readily biodegradable (according to OECD criteria).			
96-33-3	methyl acrylate, methyl propenoate			
	OECD 310 (Headspace Test)	90 - 100 %	28	REACH Dossier
	Readily biodegradable (according to OECD criteria).			

12.3. Bioaccumulative potential

The product has not been tested.

Partition coefficient n-octanol/water

CAS No	Chemical name	Log Pow
94-36-0	dibenzoyl peroxide; benzoyl peroxide	3,2
80-62-6	methyl 2-methylprop-2-enoate; methyl 2-methylpropenoate; methyl methacrylate	1,38
96-33-3	methyl acrylate, methyl propenoate	0,739

BCF

CAS No	Chemical name	BCF	Species	Source
94-36-0	dibenzoyl peroxide; benzoyl peroxide	47,4	n/n	EpiSuite QSAR tool
80-62-6	methyl 2-methylprop-2-enoate; methyl 2-methylpropenoate; methyl methacrylate	2,97 - 3,5	Pisces	SDB HIT-ICE, B
96-33-3	methyl acrylate, methyl propenoate	2,15	n/n	EpiSuite QSAR tool

12.4. Mobility in soil

The product has not been tested.

12.5. Results of PBT and vPvB assessment

No information available. The substances in the mixture do not meet the PBT/vPvB criteria according to REACH, annex XIII.

12.6. Other adverse effects

If the substance does get into the environment, it tends to remain in the

Further information

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Advice on disposal

Do not allow to enter into surface water or drains. Do not allow to enter into soil/subsoil. Dispose of waste according to applicable legislation. Non-contaminated packages may be recycled.

Waste disposal number of waste from residues/unused products

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

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Waste disposal number of used product

070108 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals; other still bottoms and reaction residues; hazardous waste

Contaminated packaging

Non-contaminated packages may be recycled. Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number: Not restricted
14.2. UN proper shipping name: Not restricted
14.3. Transport hazard class(es): Not restricted
14.4. Packing group: Not restricted

Inland waterways transport (ADN)

14.1. UN number: Not restricted
14.2. UN proper shipping name: Not restricted
14.3. Transport hazard class(es): Not restricted
14.4. Packing group: Not restricted

Marine transport (IMDG)

14.1. UN number: Not restricted
14.2. UN proper shipping name: Not restricted
14.3. Transport hazard class(es): Not restricted
14.4. Packing group: Not restricted

Air transport (ICAO-TI/IATA-DGR)

14.1. UN number: Not restricted
14.2. UN proper shipping name: Not restricted
14.3. Transport hazard class(es): Not restricted
14.4. Packing group: Not restricted

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: no

14.6. Special precautions for user

No information available.

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

not applicable

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): not applicable
 2004/42/EC (VOC): 0,15 %

National regulatory information

Water contaminating class (D): - - not water contaminating
 Skin resorption/Sensitization: Causes allergic hypersensitivity reactions.
 Biocide registry number: not applicable

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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): 1,16.

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%

Relevant H and EUH statements (number and full text)

H225	Highly flammable liquid and vapour.
H241	Heating may cause a fire or explosion.
H302	Harmful if swallowed.
H312	Harmful in contact with skin.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H335	May cause respiratory irritation.
EUH208	Contains dibenzoyl peroxide; benzoyl peroxide, methyl 2-methylprop-2-enoate; methyl 2-methylpropenoate; methyl methacrylate. May produce an allergic reaction.
EUH210	Safety data sheet available on request.

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 singularly responsible for adhering to existing laws and regulations.

Data sources:

OECD -SIDS

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