

Safety Data Sheet

according to Regulation (EC) No 1907/2006

PMMA Developer

Revision date: 21.02.2023

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

PMMA Developer

Product code:

20092

1.2. Relevant identified uses of the substance or mixture and uses advised against**Use of the substance/mixture**Intermediates Electronics industry
Reserved for industrial and professional use.**1.3. Details of the supplier of the safety data sheet**

Company name:	Raith GmbH	
Street:	Konrad-Adenauer-Allee 8	
Place:	D-44263 Dortmund	
Telephone:	+49 231 95004 0	Telefax: +49 231 95004 460
e-mail:	info@raith.de	
e-mail (Contact person):	info@raith.de	
Internet:	www.raith.de	

1.4. Emergency telephone number:

Giftnotruf der Charité Universitätsmedizin Berlin 030 192 40

SECTION 2: Hazards identification**2.1. Classification of the substance or mixture****Regulation (EC) No 1272/2008**Flam. Liq. 2; H225
Eye Irrit. 2; H319
Carc. 2; H351
STOT SE 3; H335
STOT SE 3; H336

Full text of hazard statements: see SECTION 16.

2.2. Label elements**Regulation (EC) No 1272/2008****Hazard components for labelling**propan-2-ol; isopropyl alcohol; isopropanol
4-methylpentan-2-one; isobutyl methyl ketone**Signal word:** Danger**Pictograms:****Hazard statements**

H225	Highly flammable liquid and vapour.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H351	Suspected of causing cancer.

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Precautionary statements

- P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
- P233 Keep container tightly closed.
- P280 Wear protective gloves and eye/face protection.
- P403+P235 Store in a well-ventilated place. Keep cool.
- P501 Dispose of waste according to applicable legislation.

Special labelling of certain mixtures

- EUH066 Repeated exposure may cause skin dryness or cracking.

Labelling of packages where the contents do not exceed 125 ml
Signal word: Danger

Pictograms:

Hazard statements

H351

Precautionary statements

P280-P501

2.3. Other hazards

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

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

Mixtures Solvents

Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (Regulation (EC) No 1272/2008)			
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol			70 - < 75 %
	200-661-7	603-117-00-0	01-2119457558-25	
	Flam. Liq. 2, Eye Irrit. 2, STOT SE 3; H225 H319 H336			
108-10-1	4-methylpentan-2-one; isobutyl methyl ketone			20 - < 25 %
	203-550-1	606-004-00-4	01-2119473980-30	
	Flam. Liq. 2, Carc. 2, Acute Tox. 4, Eye Irrit. 2, STOT SE 3, STOT SE 3; H225 H351 H332 H319 H335 H336 EUH066			

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

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
67-63-0	200-661-7	propan-2-ol; isopropyl alcohol; isopropanol	70 - < 75 %
		inhalation: LC50 = 37,5 mg/l (vapours); dermal: LD50 = 12800 mg/kg; oral: LD50 = 5045 mg/kg	
108-10-1	203-550-1	4-methylpentan-2-one; isobutyl methyl ketone	20 - < 25 %
		inhalation: ATE 11 mg/l (vapours); dermal: LD50 = 3000 mg/kg; oral: LD50 = 2080 mg/kg	

SECTION 4: First aid measures
4.1. Description of first aid measures

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General information

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

After inhalation

Provide fresh air. If experiencing respiratory symptoms: Call a doctor.

After contact with skin

Wash with plenty of water. Take off contaminated clothing and wash it before reuse. In case of skin reactions, consult a physician.

After contact with eyes

Rinse immediately carefully and thoroughly with eye-bath or water. Remove contact lenses, if present and easy to do. Continue rinsing. In case of troubles or persistent symptoms, consult an ophthalmologist.

After ingestion

Observe risk of aspiration if vomiting occurs. Rinse mouth immediately and drink 1 glass of water. When in doubt or if symptoms are observed, get medical advice.

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

Vomiting, Causes serious eye irritation.

Dizziness, Anaesthetic state, Cough, Dyspnoea

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**

Water spray, alcohol resistant foam, Extinguishing powder, Carbon dioxide (CO₂)

Co-ordinate fire-fighting measures to the fire surroundings.

Unsuitable extinguishing media

High power water jet.

5.2. Special hazards arising from the substance or mixture

Flammable. Vapours can form explosive mixtures with air.

In case of fire may be liberated: Carbon dioxide (CO₂), Carbon monoxide, Pyrolysis products, toxic

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. 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****General advice**

Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes. Evacuate area.

For non-emergency personnel

Remove all sources of ignition. Provide adequate ventilation. Use personal protection equipment.

For emergency responders

Wear personal protection equipment (refer to section 8).

6.2. Environmental precautions

Do not allow to enter into surface water or drains.

6.3. Methods and material for containment and cleaning up**For containment**

Stop leak if safe to do so. Cover drains.

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For cleaning up

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents). Collect in closed and suitable containers for disposal.
Ventilate affected area.

Other information

Use non-sparking tools.
Clean contaminated articles and floor according to the environmental legislation.

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**

Provide adequate ventilation. Do not breathe gas/fumes/vapour/spray. Avoid contact with skin, eyes and clothes.

Use personal protection equipment.

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.

Advice on general occupational hygiene

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

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.

Hints on joint storage

Do not store together with: Copper, ferrous metal, Strong acid, aldehydes, Aluminium, Amines, Nitro compound, Hydrogen peroxide, Phosgene, Oxidizing agents, strong., Rubber articles, plastic

Keep away from food, drink and animal feedingstuffs.

Further information on storage conditions

Recommended storage temperature +15 - +25 °C
Keep away from heat. Protect from direct sunlight.

7.3. Specific end use(s)

Intermediates Electronics industry
Reserved for industrial and professional use.

SECTION 8: Exposure controls/personal protection**8.1. Control parameters**

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Occupational exposure limits

CAS No	Substance	ppm	mg/m ³	fib/cm ³	Category	Origin
67-63-0	Isopropyl alcohol	200	-		TWA (8 h)	
		400	-		STEL (15 min)	
108-10-1	Methyl isobutyl ketone (MIBK)	20	83		TWA (8 h)	
		50	208		STEL (15 min)	

Biological limit values

CAS No	Substance	Parameter	Value	Test material	Sampling time
67-63-0	2-Propanol	Acetone	40 mg/L	Urine	End of shift at end of workweek
108-10-1	Methyl isobutyl ketone (MIBK; 4-methylpentan-2-one)	MIBK	1 mg/L	Urine	End of shift

DNEL/DMEL values

CAS No	Substance			
DNEL type	Exposure route	Effect	Value	
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol			
Worker DNEL, long-term	dermal	systemic	888 mg/kg bw/day	
Worker DNEL, long-term	inhalation	systemic	500 mg/m ³	
Worker DNEL, acute	inhalation	systemic	1000 mg/m ³	
108-10-1	4-methylpentan-2-one; isobutyl methyl ketone			
Worker DNEL, long-term	inhalation	systemic	83 mg/m ³	
Worker DNEL, acute	inhalation	systemic	208 mg/m ³	
Worker DNEL, long-term	inhalation	local	83 mg/m ³	
Worker DNEL, acute	inhalation	local	208 mg/m ³	
Worker DNEL, long-term	dermal	systemic	11,8 mg/kg bw/day	

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PNEC values

CAS No	Substance	
Environmental compartment		Value
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol	
Freshwater		140,9 mg/l
Marine water		140,9 mg/l
Freshwater sediment		552 mg/kg
Marine sediment		552 mg/kg
Micro-organisms in sewage treatment plants (STP)		2251 mg/kg
Soil		28 mg/l
108-10-1	4-methylpentan-2-one; isobutyl methyl ketone	
Freshwater		0,6 mg/l
Marine water		0,06 mg/l
Freshwater sediment		8,27 mg/kg
Marine sediment		0,83 mg/kg
Micro-organisms in sewage treatment plants (STP)		27,5 mg/l
Soil		1,3 mg/kg

8.2. Exposure controls



Appropriate engineering controls

Provide adequate ventilation as well as local exhaust at critical locations.

Individual protection measures, such as personal protective equipment

Eye/face protection

Use eye protection according to EN 166.

Hand protection

Wear suitable gloves tested to EN374.

Suitable material: NBR (Nitrile rubber)
Thickness of the glove material: 0,4 mm
Breakthrough time: > 480 min.

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.

Skin protection

Wear suitable protective clothing.

Respiratory protection

Respiratory protection necessary at: insufficient ventilation, exceeding exposure limit values.

Thermal hazards

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

Environmental exposure controls

Avoid release to the environment.

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SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid	
Colour:	colourless	
Odour:	like: Alcohol	
Odour threshold:	not determined	
Melting point/freezing point:		not determined
Boiling point or initial boiling point and boiling range:		not determined
Flammability:		Flammable
Lower explosion limits:		not determined
Upper explosion limits:		not determined
Flash point:		12 °C
Auto-ignition temperature:		not determined
Decomposition temperature:		not determined
pH-Value:		approx. 7
Viscosity / kinematic:		not determined
Water solubility:		miscible
Solubility in other solvents		
	not determined	
Partition coefficient n-octanol/water:		not determined
Vapour pressure:		not determined
Density:		not determined
Relative vapour density:		not determined
Particle characteristics:		not applicable

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

Vapours can form explosive mixtures with air.

Further Information

No information available.

SECTION 10: Stability and reactivity

10.1. Reactivity

Highly flammable

10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Vapours can form explosive mixtures with air.

Exothermic reaction with: ferrous metal, Strong acid, aldehydes, Aluminium, Amines Oxidizing agents, strong.

Explosion hazard with: Chlorates, Nitro compound, Hydrogen peroxide, Phosgene

10.4. Conditions to avoid

Keep away from sources of heat (e.g. hot surfaces), sparks and open flames. Heat. UV-radiation/sunlight.

10.5. Incompatible materials

plastic and rubber, Copper

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10.6. Hazardous decomposition products

In case of fire may be liberated: Carbon dioxide (CO₂), Carbon monoxide, Pyrolysis products, toxic

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

Acute toxicity

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

ATEmix calculated

ATE (inhalation vapour) 44,90 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol				
	oral	LD50 5045 mg/kg	Rat	Manufacturer	
	dermal	LD50 12800 mg/kg	Rabbit	Manufacturer	
	inhalation (4 h) vapour	LC50 37,5 mg/l	Rat	Manufacturer	
108-10-1	4-methylpentan-2-one; isobutyl methyl ketone				
	oral	LD50 2080 mg/kg	Rat	Manufacturer	
	dermal	LD50 3000 mg/kg	Rabbit	Manufacturer	
	inhalation vapour	ATE 11 mg/l			

Irritation and corrosivity

Causes serious eye irritation.

Skin corrosion/irritation: Based on available data, the classification criteria are not met.

Sensitising effects

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

Carcinogenic/mutagenic/toxic effects for reproduction

Suspected of causing cancer. (4-methylpentan-2-one; isobutyl methyl ketone)

Germ cell mutagenicity: Based on available data, the classification criteria are not met.

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

STOT-single exposure

May cause respiratory irritation. (4-methylpentan-2-one; isobutyl methyl ketone)

May cause drowsiness or dizziness. (propan-2-ol; isopropyl alcohol; isopropanol; 4-methylpentan-2-one; isobutyl methyl ketone)

STOT-repeated exposure

Repeated exposure may cause skin dryness or cracking.

Aspiration hazard

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

Information on likely routes of exposure

oral, Skin contact, Eye contact, Inhalation.

11.2. Information on other hazards

Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to humans as no components meets the criteria.

SECTION 12: Ecological information

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12.1. Toxicity

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

The product is not: Ecotoxic.

CAS No	Chemical name					
	Aquatic toxicity	Dose	[h] [d]	Species	Source	Method
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol					
	Acute fish toxicity	LC50 mg/l	10000	96 h	Piscis	Manufacturer
108-10-1	4-methylpentan-2-one; isobutyl methyl ketone					
	Acute fish toxicity	LC50 mg/l	> 179	96 h	Piscis	Manufacturer
	Acute crustacea toxicity	EC50 mg/l	> 200	48 h	Daphnia sp.	Manufacturer

12.2. Persistence and degradability

The product has not been tested.

CAS No	Chemical name			
	Method	Value	d	Source
	Evaluation			
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol			
	Biochemical oxygen demand	53 %	5	Manufacturer
	Readily biodegradable (according to OECD criteria).			
108-10-1	4-methylpentan-2-one; isobutyl methyl ketone			
	Biochemical oxygen demand	83 %	28	Manufacturer
	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
67-63-0	propan-2-ol; isopropyl alcohol; isopropanol	0,05
108-10-1	4-methylpentan-2-one; isobutyl methyl ketone	1,9

12.4. Mobility in soil

The product has not been tested.

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. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

No information available.

Further information

Avoid release to the environment.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Do not allow to enter into surface water or drains. Dispose of waste according to applicable legislation.

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Contaminated packaging

Handle contaminated packages in the same way as the substance itself.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number: UN 1993
14.2. UN proper shipping name: FLAMMABLE LIQUID, N.O.S. (propan-2-ol; isopropyl alcohol; isopropanol, 4-methylpentan-2-one; isobutyl methyl ketone)
14.3. Transport hazard class(es): 3
14.4. Packing group: II
 Hazard label: 3



Classification code: F1
 Special Provisions: 274 601 640D
 Limited quantity: 1 L
 Excepted quantity: E2
 Transport category: 2
 Hazard No: 33
 Tunnel restriction code: D/E

Inland waterways transport (ADN)

14.1. UN number or ID number: UN 1993
14.2. UN proper shipping name: FLAMMABLE LIQUID, N.O.S. (propan-2-ol; isopropyl alcohol; isopropanol, 4-methylpentan-2-one; isobutyl methyl ketone)
14.3. Transport hazard class(es): 3
14.4. Packing group: II
 Hazard label: 3



Classification code: F1
 Special Provisions: 274 601 640D
 Limited quantity: 1 L
 Excepted quantity: E2

Marine transport (IMDG)

14.1. UN number or ID number: UN 1993
14.2. UN proper shipping name: FLAMMABLE LIQUID, N.O.S. (Propan-2-ol; isopropyl alcohol; isopropanol, 4-methylpentan-2-one; isobutyl methyl ketone)
14.3. Transport hazard class(es): 3
14.4. Packing group: II
 Hazard label: 3



Marine pollutant: -
 Special Provisions: 274
 Limited quantity: 1 L
 Excepted quantity: E2
 EmS: F-E, S-E

Air transport (ICAO-TI/IATA-DGR)

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14.1. UN number or ID number:	UN 1993
14.2. UN proper shipping name:	FLAMMABLE LIQUID, N.O.S. (Propan-2-ol; isopropyl alcohol; isopropanol, 4-methylpentan-2-one; isobutyl methyl ketone)
14.3. Transport hazard class(es):	3
14.4. Packing group:	II
Hazard label:	3



Special Provisions:	A3
Limited quantity Passenger:	1 L
Passenger LQ:	Y341
Excepted quantity:	E2
IATA-packing instructions - Passenger:	353
IATA-max. quantity - Passenger:	5 L
IATA-packing instructions - Cargo:	364
IATA-max. quantity - Cargo:	60 L

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Warning: Flammable liquids! Vapours can form explosive mixtures with air.

14.7. Maritime transport in bulk according to IMO instruments

not applicable

SECTION 15: Regulatory information
15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture
EU regulatory information

Restrictions on use (REACH, annex XVII):

Entry 3, Entry 40, Entry 75

2010/75/EU (VOC):	< 100 %
Information according to 2012/18/EU (SEVESO III):	P5c FLAMMABLE LIQUIDS

National regulatory information

Employment restrictions:	Observe restrictions to employment for juveniles according to the 'juvenile work protection guideline' (94/33/EC). Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers.
Water hazard class (D):	1 - slightly hazardous to water

15.2. Chemical safety assessment

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

SECTION 16: Other information
Abbreviations and acronyms

CLP: Classification, labelling and Packaging
 REACH: Registration, Evaluation and Authorization of Chemicals
 GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
 UN: United Nations
 CAS: Chemical Abstracts Service
 DNEL: Derived No Effect Level
 DMEL: Derived Minimal Effect Level

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PNEC: Predicted No Effect Concentration
 ATE: Acute toxicity estimate
 LC50: Lethal concentration, 50%
 LD50: Lethal dose, 50%
 LL50: Lethal loading, 50%
 EL50: Effect loading, 50%
 EC50: Effective Concentration 50%
 ErC50: Effective Concentration 50%, growth rate
 NOEC: No Observed Effect Concentration
 BCF: Bio-concentration factor
 PBT: persistent, bioaccumulative, toxic
 vPvB: very persistent, very bioaccumulative
 ADR: Accord européen sur le transport des marchandises dangereuses par Route
 (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 RID: Regulations concerning the international carriage of dangerous goods by rail
 ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
 (Accord européen relatif au transport international des marchandises dangereuses par voies de navigation
 intérieures)
 IMDG: International Maritime Code for Dangerous Goods
 EmS: Emergency Schedules
 MFAG: Medical First Aid Guide
 IATA: International Air Transport Association
 ICAO: International Civil Aviation Organization
 MARPOL: International Convention for the Prevention of Marine Pollution from Ships
 IBC: Intermediate Bulk Container
 VOC: Volatile Organic Compounds
 SVHC: Substance of Very High Concern
 For abbreviations and acronyms, see: ECHA Guidance on information requirements and chemical safety
 assessment, chapter R.20 (Table of terms and abbreviations).

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
Eye Irrit. 2; H319	Calculation method
Carc. 2; H351	Calculation method
STOT SE 3; H335	Calculation method
STOT SE 3; H336	Calculation method

Relevant H and EUH statements (number and full text)

H225 Highly flammable liquid and vapour.
 H319 Causes serious eye irritation.
 H332 Harmful if inhaled.
 H335 May cause respiratory irritation.
 H336 May cause drowsiness or dizziness.
 H351 Suspected of causing cancer.
 EUH066 Repeated exposure may cause skin dryness or cracking.

Further Information

The information is based on the present level of our knowledge. It does not, however, give assurance of product properties and establishes no contract legal rights. The receiver of our product is singularly 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.)