

Material Safety Data Sheet

according to Regulation (EC) No 1907/2006 (REACH)
according to Regulation (EC) No 453/2010



Trade name: IP-Dip Photolack

Revision date: 16.08.2016

Print date: 28.09.2016

Version: EN 02/2016

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1. IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1 Product identifier

Name of the substance or mixture:

IP-Dip Photoresist

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

UV-curable photoresist which can be used particularly for two-photon absorption lithography.

1.3 Details of the supplier of the safety data sheet

Supplier (manufacturer/importer/downstream user/dealer):

Manufacturer/supplier:

Nanoscribe GmbH

Street/P.O. Box:

Hermann-von-Helmholtz-Platz 1

Country/ZIP/Place:

D-76344 Eggenstein-Leopoldshafen

Phone:

+49 721 981 980 0

Fax:

+49 721 981 980 130

Internet:

<http://www.nanoscribe.com>

Point of contact for technical information: service@nanoscribe.com

1.4 Emergency telephone number

Emergency Phone: +49 (0) 761 / 19240, University Medical Center Freiburg (Poison Information Center)

Phone, technical information service: +49 721 981 980 0

The technical information service is only available during regular office hours:

Monday – Friday 08:00 – 16:00 UTC+1

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

2.1.1. Classification according to Directive (EC) No 1272/2008 [CLP]

H315 Skin irritation cat. 2

H319 Eye irritation cat. 2

H317 Skin sensitisation cat. 1

H412 Hazardous to the aquatic environment: chronic, cat. 3

2.2 Label elements

2.2.1. Labelling according to Directive (EC) No 1272/2008 [CLP]

Pictogram:



Signal word: **Warning**

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Hazard statement(s) / H-Phrases

H315: Causes skin irritation.
H317: May cause an allergic skin reaction.
H319: Causes serious eye irritation.
H412: Harmful to aquatic life with long lasting effects.

Precautionary statement(s) / P-Phrases

P261: Avoid breathing dust/fume/gas/mist/vapours/spray.
P273: Avoid release to the environment.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P333 + P313: If skin irritation or rash occurs: Get medical advice/attention.
P337 + P313: If eye irritation persists: Get medical advice/attention.

2.3 Other hazards

IP-Dip does not meet the criteria for PBT or vPvB- substances.
Other hazards are not known.

3. COMPOSITION/INFORMATION ON INGREDIENTS

3.1 Substances

This is an alloy, see section 3.2.

3.2 Mixtures

3.2.1 Description of the mixture

UV-curable photoresist.

3.2.2 Hazardous ingredients

2-(Hydroxymethyl)-2-[[1-(1-oxoallyl)oxy]methyl]-1,3-propanediyl diacrylate

EG-No.: 222-540-8; Index: 607-110-00-3; CAS no.: 3524-68-3

Content: 60 – 80 %

Classification according to Directive (EC) No 1272/2008:

H315 Skin irritation cat. 2
H317 Skin sensitisation cat. 1
H319 Eye irritation cat. 2

9H-fluorene-9,9-diylbis(4,1-phenyleneoxyethane-2,1-diyl)-bisacrylate

EG-No.: -- Index: -- CAS no.: 161182-73-6

Content: < 24 %

Classification according to Directive (EC) No 1272/2008:

Aquatic Chronic 2; H411

Biphenyl-2-ol, ethoxylated, esters with acrylic acid

EG-No.: -- Index: -- CAS no.: 72009-86-0

Content: < 24 %

Classification according to Directive (EC) No 1272/2008:

H315 Skin irritation cat. 2
H317 Skin sensitisation cat. 1
H319 Eye irritation cat. 2

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3.3 Additional information

Other components < 10 % are not subject to classification according to EC directives or respective national laws.

Specification of H phrases under 16.

4. FIRST AID MEASURES

4.1 Description of first aid measures

4.1.1 General information

Take medical advice when occurrence symptoms or in cases of doubt. Remove contaminated, soaked clothing immediately.

4.1.2 After inhalation

Remove to fresh air. Seek medical advice, if necessary.

4.1.3 After skin contact

Remove contaminated, soaked clothing immediately. Wash thoroughly with plenty of water. Seek medical advice, if necessary.

4.1.4 After eye contact

Rinse out with plenty of water for at least 10 minutes under running water with the eyelid held wide open. Consult an ophthalmologist.

4.1.5 After ingestion

Rinse mouth well. If swallowed, seek medical advice immediately and show this container or label.

4.1.6 Self-protection of the first aider

Keep in mind that first-aiders should consider their own safety first.

4.1.7 Notes for the doctor

No information available

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

Seek medical advice in case of symptoms or if in doubt.

4.3 Indication of any immediate medical attention and special treatment needed

If a doctor is consulted, please take this safety datasheet with you.

5. FIRE-FIGHTING MEASURES

5.1 Extinguishing media

5.1.1 Suitable extinguishing media:

Water spray, CO₂, alcohol-resistant foam, dry extinguishing media. Extinguish larger fires with water spray or alcohol-resistant foam.

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5.1.2 Unsuitable extinguishing media that must not be used for safety reasons:

Water with full jet.

5.2 Special hazards arising from the substance or mixture

Fire class: B (liquid or liquefying ingredients)

5.3 Advice for fire-fighters

5.3.1 Special protective equipment for fire fighting:

Do not stay in dangerous zone without self-contained breathing apparatus. In order to avoid contact with skin, keep a safety distance and wear suitable protective clothing. Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

5.3.2 Special hazards from the substance or preparation itself, combustion products or resulting gases:

Development of hazardous combustion gases or vapours is possible in the event of fire. The following may develop in the event of fire: carbon oxide, carbon dioxide.

5.4 Additional information

No special measures are necessary.

6. ACCIDENTAL RELEASE MEASURES

6.1 Personal precautions, protective equipment and emergency procedures

Wear protective clothing.
Keep unprotected persons away.
Avoid substance contact.
Safety measures as mentioned in chapter 7 and 8.

6.2 Environmental precautions

Prevent product from entering soil, surface water, or ground water.
Do not let the product enter the sewerage system.

6.3 Methods and material for containment and cleaning up

Absorb with liquid-binding and neutralizing material (sand, universal binders). Transfer to a closable, labelled salvage container for disposal according to local regulations. Clean up affected area.
TRGS 201: classification and labelling of waste for disposal at handling.

6.4 Reference to other sections

Information on safe handling see chapter 7.
Information regarding personal protective equipment see chapter 8.
Information for the disposal see chapter 13.

7. HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 Information for safe handling / Technical measures

Do not leave open jars.
Leak-proof equipment with chemical fume hood required when filling and refilling substance.
To be filled into labelled container only.

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Do not transport with incompatible substances.
Ensure good ventilation of the working area.
Washing facilities should be provided at place of work.
Eye shower should be provided and distinctly marked.
Provide emergency showers when handling larger quantities.

7.1.2 Information on general hygiene measures in the workplace

Comply with minimum standards according to TRGS 500.

These include general hygiene measures such as:

- Keep working place clean.
- Do not eat, drink, and smoke in working areas.
- After use, wash hands thoroughly with plenty of water.
- Remove contaminated clothing and protective equipment before entering other areas.

7.1.3 Information about protection against explosions and fire

Keep away from sources of ignition – Do not smoke.

7.1.4 Other Information

No further relevant information available.

7.2 Conditions for safe storage in consideration of incompatibilities

7.2.1 Requirements for storage rooms and containers

Container should be labelled clearly.

Store in original container.

Keep container tightly closed.

Store in a cool dry place.

Store in well ventilated area.

Store in the dark.

Store away from water.

7.2.2 Information about storage conditions

Do not store together with:

- Pharmaceuticals, food, and animal feed.
- Infectious, radioactive, and explosive substances.
- Oxidizing substances of group 1, TRGS 510

7.2.3 Further information about storage conditions

Please follow the manufacturers' instructions. The substance should not be stored together with substances where risk of hazardous reactions may occur.

7.2.4 Storage group (VCI)

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7.3 Specific final application

See also Technical Information Sheet and user manual.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Properly operating chemical fume hood designed for hazardous chemicals and having an average face velocity of at least 100 feet per minute.

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8.1 Control parameters

Components with critical values that require monitoring at the workplace:
Not applicable

8.2 Exposure controls

8.2.1 Individual protection measures, such as personal protective equipment

General protective and hygienic measures:

Keep away from food, beverages, and animal feed.
Instantly remove any soaked, contaminated garments.
Wash hands before breaks and at the end of work.
Do not smoke during work time.
Avoid contact with the eyes and skin.
Use skin protection cream for preventive skin protection.

Respiratory protection

Necessary when aerosols are generated.
Respiratory protection: Gas filter P2 or P3
Colour code: white

Hand protection

The protective gloves to be used must comply with the specifications of EC directive 89/686/EEC and the resultant standard EN374.

Glove material: Nitril rubber and Butyl rubber

Layer thickness: 0.5 mm

Breakthrough: > = 8 h

This recommendation applies only to the product stated in the safety data sheet and supplied by us as well as to the purpose specified by us. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN374 please contact the supplier of CE-approved gloves.

Eye protection

Tightly fitting safety goggles according to EN166:2001.
Provide eye shower.
Frame goggles with side protection.

Body protection

Body protection must be chosen depending on activity and possible exposure, e.g. head protection, apron, protective boots, chemical protection suit.

8.2.2 Environment exposure control measures

Do not allow it to enter the sewage system or water.
see chapter 7. No more extensive measures necessary.

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9. PHYSICAL AND CHEMICAL PROPERTIES

9.1 Important health, safety and environmental information

9.1.1 Appearance

Form	liquid
Colour	yellowish
Odour	characteristic

9.1.2 Safety relevant basic data

Type	Value
Melting point / range (°C)	non-applicable
Lower explosive limit	not explosive
Upper explosive limit	
Vapour pressure (mbar at °C)	non-applicable
Density (g/cm ³)	1,14 – 1,19
Water solubility (20 °C in g/l)	insoluble
pH-value (20 °C)	non-applicable
Viscosity, dynamic (mPas/20 °C)	non-applicable
Boiling point (°C)	non-applicable
Bulk density (kg/m ³)	non-applicable
Flash point (°C) closed cup	> 100
n-octanol-water partition factor (log Pow)	non-applicable

9.2 Other information

No other information available

10. STABILITY AND REACTIVITY

10.1 Reactivity

Reacts with oxidants and acids. Curing with UV light.

10.2 Chemical stability

No decomposition if used and stored according to specifications.

10.3 Possibility of hazardous reactions

No data available.

10.4 Conditions to avoid

Keep away from water and moisture because of the hygroscopic property of the preparation. Keep away from light and lighting sources.

10.5 Incompatible materials

Avoid contact with strong oxidising agents, acids and bases.

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10.6 Hazardous decomposition products

In the event of fire: Carbon monoxide and carbon dioxide.

11. TOXICOLOGICAL INFORMATION

11.1 General information

Longer contact with the product may cause damaging to skin and eyes.

11.2 Information on toxicological effects

There are no toxicological trials from animal testing available for the preparation. The following characteristics can be expected based on the components of the preparation:

Corrosive/irritant to skin

Relevant ingredients:

9.9-bis [4- (2-acryloyloxyethoxy) phenyl] fluoren (< 25 %) additive,
substance classification: category 2

SCL: Category 2: 10 % (universal threshold value)

polyethylene glycol-o- phenylphenyl-acrylate (< 25 %) additive,
substance classification: category 2

SCL: Category 2: 10 % (universal threshold value)

2-(Hydroxymethyl)-2-[[1- oxoallyl]oxy]methyl]-1,3-propanediyl diacrylate (60 - 80 %) additive,
substance classification: category 2

category 2: 10 % (universal threshold value)

Result: The composite is classified as category 2.

Severe damaging/irritation of eyes

Relevant ingredients:

9.9-bis [4- (2-acryloyloxyethoxy) phenyl] fluoren (< 25 %) additive,
substance classification: category 2

SCL: Category 2: 10 % (universal threshold value)

polyethylene glycol-o- phenylphenyl-acrylate (< 25 %) additive,
substance classification: category 2

SCL: Category 2: 10 % (universal threshold value)

2-(Hydroxymethyl)-2-[[1- oxoallyl]oxy]methyl]-1,3-propanediyl diacrylate (60 - 80 %) additive,
substance classification: category 2

category 2: 10 % (universal threshold value)

Result: The composite is classified as category 2.

Sensitisation of skin

Relevant ingredients:

9.9-bis [4- (2-acryloyloxyethoxy) phenyl] fluoren (< 25 %) additive,
substance classification: category 1

SCL: Category 2: 1 % (universal threshold value)

polyethylene glycol-o- phenylphenyl-acrylate (< 25 %) additive,
substance classification: category 1

SCL: Category 2: 1 % (universal threshold value)

2-(Hydroxymethyl)-2-[[1- oxoallyl]oxy]methyl]-1,3-propanediyl diacrylate (60 - 80 %) additive,
substance classification: category 1

category 2: 1 % (universal threshold value)

Result: The composite is classified as category 1.

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11.2.1 Toxicological tests for the product component

2-(Hydroxymethyl)-2-[[[1-oxoallyl]oxy]methyl]-1,3-propanediyl diacrylate

Acute toxicity	Species	Value	Approach	Comment
LD50	Rat	1830 mg/kg	Oral	

Note:

Digestive tract: Abscess or bleeding in small intestine.

Digestive tract: Abscess or bleeding in large intestine.

Digestive tract: Other alteration.

Acute toxicity	Species	Value	Approach	Comment
LD50	Rabbit	4000 mg/kg	Dermal	

Irritation/ Cauterization

	Species	Value	Approach	Comment
On the skin	rabbit	mild (500mg)		
In the eye	rabbit	severely irritating (1mg)		

Sensitisation

After skin irritation: Irritant to skin and mucous membranes.

After eye contact: Severely irritating.

Sensitisation: Sensitisation possible by skin contact.

Subacute to chronic toxicity:

There is not enough substance-specific information available.

Based on the above findings an allergenic skin reaction at least of susceptible individuals after sensitisation may occur.

Subacute oral toxicity:

No data available.

Subacute inhalative toxicity:

No data available.

Cancerogenity, mutagenity and reproduction toxicity

Cancerogenity:

No classification data on carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA, or ACGIH.

Mutagenity:

Mutagenic effects have been observed on test with laboratory animals.

Reproduction toxicity:

No data available.

Other information (about experimental toxicology):

Mutagenic effects occurred in animal experiments.

Reproductive toxicity occurred in animal experiments.

Tumorigenic effects occurred in animal experiments.

There is no sufficient substance-specific information available for additional ingredients.

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12. ECOLOGICAL INFORMATION

12.1 Toxicity

No data available.

12.2 Persistence and degradability

No data available.

12.3 Bioaccumulative potential

No data available.

Bioconcentration factor (BCF):

No data available.

12.4 Mobility in soil

No data available.

12.5 Results of PBT and vPvB assessment

IP-Dip does not meet the criteria for PBT or vPvB- substances.

12.6 Other adverse effects

Components that may contribute to **chronical water contamination:**

9,9-Bis [4- (2-acryloyloxyethoxy) phenyl] fluoren (< 24%), Category 3

Result: The composite is classified as category 3.

12.7 Additional information

No other information available

13. DISPOSAL CONSIDERATIONS

13.1 Waste treatment methods

Dispose of according to local and / or national regulations.

Proper disposal / product

Recommendation:

Do not allow it to enter the sewage system or water. Contaminated packages are to be treated in the same way as the substance. Waste and containers must be disposed in a safe manner. Disposal according to EC directives 75/442/EEC and 91/689/EEC on waste and hazardous waste in their applicable versions.

Disposal/ waste (Product)

Do not dispose as sewage. Contaminated packaging should be properly disposed of together with remaining product or completely emptied and cleaned. Water is recommended for cleaning contaminated packaging with detergents added as necessary

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EAK / AVV waste:

The waste key number according to AVV is dependent on the origin of the waste and therefore can vary by industry or process. Due to the ingredients, the waste is hazardous. In Germany, the disposal requires verification.

Proposals for waste determination EAKV:

08 01 11 paint and varnish containing organic solvents or other dangerous substances

Proper disposal / Packaging

Recommendation:

The disposal of the packaging has to be in accordance with regulations. Contaminated packaging is considered hazardous waste.

Waste codes / waste description

15 01 10 - Packaging that contains residues of dangerous substances or is contaminated by dangerous substances.

Unless expressly regulated otherwise, cleaned and uncontaminated packaging may be recycled without special verification.

13.2 Additional information

The waste producer is responsible for the classification of the waste according to the European Waste Catalogue. The mentioned waste codes are recommendations according to the prospective use of this product. Other waste codes may potentially be referred to, depending on the user's special application and disposal circumstances.

14. TRANSPORT INFORMATION

No hazardous material in the sense of transport regulations.

15. REGULATORY INFORMATION

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

15.1.1 EU regulations

Preparation guideline (1999/45/EG)

Substance guideline (67/548/EWG)

REACH regulation (EG) no. 1907/2006

Regulation (EG) no. 1272/2008

Regulation (EC) No 2037/2000 (substances that deplete the ozone layer): Not applicable

Regulation (EC) No 850/2004 (Persistent Organic Pollutants): Not applicable

Regulation (EC) No 689/2008 (export and import of dangerous chemicals): Not applicable

Regulation (EC) No 648/2004 (detergents Ordinance): Not applicable

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15.1.2 National regulations

Restriction of occupation:

Employment restrictions concerning young persons must be observed to §22 JArbSchG!

Employment restrictions concerning pregnant and lactating mothers according to §4 and 5 MuSchRiV note!

Accident reporting ordinance

not relevant

Water hazard class:

WGK 1 (low water-dangerous)

Chemical Characterisation:

Pentaerythritol triacrylate

For water-polluting effect was none Classification. Penetration in soil and waters but should be avoided at all costs.

When laid bare authorities agree.

Industrial Safety Regulation / Betriebssicherheitsverordnung (BetrSichV).

not relevant

TA-Luft (Technical instructions on air quality control)

Chapter 5.2.5 Organic Substances

Organic substances, except dusts.

The following values, specified as overall carbon, are in all not allowed to be exceeded in exhaust gas:

Mass flow: 0.50 kg/h or Mass concentration: 50 mg/m³.

Other regulations, restrictions and prohibition ordinances:

German regulations for occupational insurance schemes (BGR)

Technical rules for hazardous substances (TRGS)

Chemicals Prohibition Ordinance: --

12. BImSchV (Incident regulation): --

VCI-Storage class (TRGS 510):
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15.2 Chemical Safety Assessment

Evaluation of safety has not been carried out for substances in this preparation.

16. OTHER INFORMATION

Hazard warnings referred to in sections 2 and 3

According to Directive (EC) No 1272/2008 [CLP]:

Hazard statement(s) / H-Phrases

H315: Causes skin irritation.

H317: May cause an allergic skin reaction.

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H319: Causes serious eye irritation.
H411: Toxic to aquatic life with long lasting effects.
H412: Harmful to aquatic life with long lasting effects.

Precautionary statement(s) / P-Phrases

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

P273: Avoid release to the environment.

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

P305 + P351 + P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

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

P337 + P313: If eye irritation persists: Get medical advice/attention.

Training advice

Briefing and instruction of employees according to the German Ordinance of Hazardous Substances (GefStoffV).

Indication of changes

Updating and conversion to GHS/CLP.

Data origin:

ADR European Agreement concerning the international carriage of dangerous goods by road.

www.baua.de

<http://www.dguv.de/ifa/de/gestis/stoffdb/index.jsp>

Further information

The particulars given in the Material Safety Data Sheet only apply to the described product in connection with its appropriate use. These particulars are based on the latest state of our knowledge and information. In particular, they serve the purpose of describing our product under the aspect of hazards caused by such product and pertaining to safety precautions. They do not constitute any guarantee of product quality and/or quality features. The particulars given in this Material Safety Data Sheet are required in accordance with article 31 and annex II of the Regulation (EC) No 1907/2006. The copying or quotation of contents is prohibited, even in extracts.