

**Safety Data Sheet according to Regulation (EC) No. 1907/2006 (REACH)  
(as amended by Regulation (EU) No. 453/2010)**

Trade name: **IP-S Photoresist**

Product.-no.:

Version: 1/16

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Date of print: 2016-09-28

Revision: 2016-08-16

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**1. IDENTIFICATION OR. THE PREPARATION AND COMPANY**

**1.1 Identification of the substance / the preparation:**

IP-S Photoresist

**1.2 Application of the substance / the preparation:**

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

**1.3 Company (Producer/ Supplier)**

Nanoscribe GmbH  
Hermann-von Helmholtz-Platz 1  
76344 Eggenstein-Leopoldshafen  
GERMANY

**Fon:** +49 721 981 980 0

**Fax:** +49 721 981 980 130

**Web:** <http://www.nanoscribe.com/>

**E-Mail for technical information:** [service@nanoscribe.com](mailto:service@nanoscribe.com)

**1.4 Emergency Phone:** +49 721 981 980 0 (Monday – Friday 08:00 – 16:00 UTC+1)

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**2. HAZARDS IDENTIFICATION**

**2.1 Classification of the mixture**

Classification according to Regulation (EC) No. 1272/2008, annex VII

H412 Harmful to aquatic life with long lasting effects cat. 3

Classification according to directive 67/548/EWG or to directive 1999/45/EG:

R52/53 Harmful to aquatic organisms may cause long-term adverse effects in the aquatic environment.

**2.2 Label elements**

**2.2.1 Labelling according to Regulation (EC) No 1272/2008**

Pictogram --

Signal word --

Hazard statement(s)

H412: Harmful to aquatic life with long lasting effects.

Precautionary statement(s)

Prevention:

P273: Avoid release to the environment.

Response: --

Disposal:

P501: Dispose of content/container in accordance with local/regional/national/international regulations.

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Labelling of mixtures directive 1999/45/EC

Pictogram --

Hazard information --

Hazard statement(s)

R52/53 Harmful to aquatic organisms may cause long-term adverse effects in the aquatic environment.

Safety phrases

S25 Avoid contact with eyes.

S39 Wear eye/face protection

S61 Avoid release to the environment. Refer to special instructions / Safety data sheets.

### **2.3 Other Hazards**

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

Other hazards are not known.

## **3. COMPOSITION / INFORMATION ON INGREDIENTS**

Chemical Characterisation:

Components: 4,4'-Bis-(diethylamino)-benzophenon  
(CAS: 90-93-7, EG: 202-025-4, INDEX: --)

Content: < 1 %

Classification accordance with Regulation (EC) No. 1272/2008

H319 Eye irritation, cat. 2

H315 Skin irritation, cat. 2

H317 Skin sensitization, cat. 1

H400 Acute aquatic toxic, cat. 1

H335 STOT SE 3

Classification according to directive 67/548/EWG

Xi, N R36/37/38; R50/53

Components: 4-Hydroxybutyric acid lactone  
(CAS: 96-48-0, EG: 202-509-5, INDEX: --)

Content: < 2 %

Classification accordance with Regulation (EC) No. 1272/2008

H302 Acute toxicity, oral, cat. 4

H318 Eye damage, cat. 1

H336 STOT SE 3

Classification according to directive 67/548/EWG

Xi, R22, R41, R67

### **3.2 Additional information:**

Other components < 100 % are not subject to classification according to EC directives or respective national laws.

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#### **4. FIRST AID MEASURES**

##### **4.1 General information:**

Remove contaminated, soaked clothing immediately.

##### **4.2 After inhalation:**

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

##### **4.3 After skin contact:**

Wash thoroughly with plenty of water. Seek medical advice, if necessary.

##### **4.4 After eye contact:**

Rinse out with plenty of water for at least 15 minutes under running water with the eyelid held wide open. Consult an ophthalmologist.

##### **4.5 After swallowing:**

Rinse mouth well. Consult a physician and present MSDS.

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#### **5. FIRE FIGHTING MEASURES**

##### **5.1.1 Suitable extinguishing media:**

Water spray, CO<sub>2</sub>, alcohol-resistant foam, dry extinguishing media.

##### **5.1.2 Extinguishing media that must not be used for safety reasons:**

Water with full jet.

##### **5.2 Special risks originating from mixture:**

Fire class: B (liquid or liquefying ingredients)

##### **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.

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

Cool container with spray water from a safe distance.

Prevent fire-fighting water from entering surface water or groundwater.

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.

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#### **6. ACCIDENTAL RELEASE MEASURES**

##### **6.1 Personal precautionary measures:**

Wear protective clothing.

Keep unprotected persons away.

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Avoid substance contact.  
Do not inhale vapours/aerosols.  
Ensure supply of fresh air in enclosed rooms.  
Safety measures as mentioned in chapter 7 and 8.

**6.2 Environmental protection measures:**

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

**6.3 Procedures for cleaning / absorption:**

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.

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**7. HANDLING AND STORAGE**

**7.1 Protection measures for the safe handling**

**7.1.1 Information for safe handling / Technical measures:**

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

Substance is combustible.  
Fire extinguishers should be kept at hand.  
Keep away from sources of ignition – Do not smoke.

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7.1.4 Other Information:

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## **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 515

7.2.3 Further information about storage conditions:

The substance should not be stored together with substances where risk of hazardous reactions may occur.

7.2.4 Storage group (VCI)

10 – 13

## **7.3 Specific final application**

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## **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.

### **8.1 Parameters to be monitored**

8.1.1 Components with critical values that require monitoring at the workplace:

Not applicable

### **8.2 Occupational exposure controls**

8.2.1 Individual safety precautions - personal protective equipment:

Breathing equipment:

Necessary when aerosols are generated.

Respiratory protection: Gas filter P2 or P3

Colour code: white

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Hand protection:

Glove material: Nitril rubber and Butyl rubber

Layer thickness: 0.5 mm

Breakthrough: > = 8 h

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

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.

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.

## **9. PHYSICAL AND CHEMICAL PROPERTIES**

### **9.1 Information on the basic physical and chemical properties**

**Appearance:**

**Form:** liquid

**Colour:** pale yellow

**Odour:** characteristic

**Safety data:**

|                                             |                   |                                    |              |
|---------------------------------------------|-------------------|------------------------------------|--------------|
| Melting point                               | No Data available | °C                                 |              |
| Boiling point                               | No Data available | °C                                 |              |
| Flash point                                 | > 100             | °C                                 | closed cup   |
| Explosions limits                           | lower<br>upper    | Not Established<br>Not Established | Vol%<br>Vol% |
| Ignition temperature                        | Not Established   | °C                                 |              |
|                                             | 1.16 – 1.19       | g/ml (20°C)                        |              |
| Vapour pressure                             | No Data available | hPa (20°C)                         |              |
| Solubility in/miscibility with water (20°C) | insoluble         |                                    |              |

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**9.2 Other Information**

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**10. STABILITY AND REACTIVITY**

**10.1 Reactivity**

Reacts with oxidants and acids.

**10.2 Chemical stability**

No decomposition if used and stored according to specifications.

**10.3 Possibility of hazardous reactions**

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**10.4 Conditions to be avoided**

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**

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**10.6 Hazardous decomposition products**

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

**11. TOXICOLOGICAL INFORMATION**

**11.1 Information on toxicological effects**

**11.1.1 Toxicological tests for the product component**

*4-Hydroxybutyric acid lactone*

| <u>Acute toxicity</u> | <u>Species</u> | <u>Value</u> | <u>Approach</u> | <u>Comment</u> |
|-----------------------|----------------|--------------|-----------------|----------------|
| LD50                  | Rat            | 1540 mg/kg   | Oral            |                |

Note:

Behavioral: Altered sleep time (including change in righting reflex).

Behavioral: Somnolence (general depressed activity). Respiratory disorder

| <u>Acute toxicity</u> | <u>Species</u> | <u>Value</u> | <u>Approach</u> | <u>Comment</u> |
|-----------------------|----------------|--------------|-----------------|----------------|
| LC50                  | Rat            | 5100 mg/kg   | Inhalation      |                |

| <u>Acute toxicity</u> | <u>Species</u> | <u>Value</u> | <u>Approach</u> | <u>Comment</u> |
|-----------------------|----------------|--------------|-----------------|----------------|
| LD50                  | Guinea Pig     | 5000 mg/kg   | Dermal          |                |

Cancerogenity, mutagenity and reproduction toxicity

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Cancerogenity:

This product is or contains a component that is not classifiable as to its carcinogenicity based on its IARC, ACGIH, NTP, or EPA classification.

Specific target organ toxicity - single exposure:

May cause drowsiness or dizziness.

Additinal Information:

RTECS: LU3500000

An anesthetic effect on the central nervous system characterized by a loss of sensation. Preliminary excitement is the initial effect followed by relaxation, stupor, or sleep, Nausea, Dizziness, Headache.

Liver – Irregularities – Based on Human Evidence

## **12. ECOLOGICAL INFORMATION**

### **12.1 Ecotoxicity for the product component**

No ecotoxicity established.

**12.2 Persistence and biodegradability:** No data available

**12.3 Bioaccumulation potential** No data available

**12.4 Mobility in Soil:** No data available

**12.5 Result of the inquiry of the PBT-performance:** IP-S does not meet the criteria for PBT or vPvB- substances.

**12.6 Other harmful effects:** None known

## **13. DISPOSAL CONSIDERATIONS**

### **13.1 Waste treatment methods**

#### **13.1.1 Container and method for waste treatment:**

Disposal / waste (Packaging)

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.



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

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.

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.

Waste codes / waste:

Proposals for waste determination:

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

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## **14. TRANSPORT INFORMATION**

- |             |                                           |      |
|-------------|-------------------------------------------|------|
| <b>14.1</b> | Road + Rail (ADR/RID/GGVSEB):             | None |
| <b>14.2</b> | Inland water transportation (ADN/GGVSEB): | None |
| <b>14.3</b> | Sea (IMDG-Code/GGVSee):                   | None |
| <b>14.4</b> | Air (ICAO-TI/IATA-DGR):                   | None |
| <b>14.5</b> | Further information:                      | None |
- 

## **15. STATUTORY PROVISIONS**

### **15.1 EU-Provisions**

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

15.1.2 Labelling according to Regulation (EC) No 1272/2008

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Hazard components for labeling:

Pictogram --

Hazard information --

Hazard statement(s)

H412 Harmful to aquatic life with long lasting effects cat. 3

Precautionary statement(s)

Prevention:

P273: Avoid release to the environment.

Response: --

Disposal:

P501: Dispose of content/container in accordance with local/regional/national/international regulations.

Labelling of mixtures directive 1999/45/EC

Pictogram --

Hazard information --

Hazard statement(s)

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Safety phrases

S25 Avoid contact with eyes.

S39 Wear eye/face protection.

S61 Avoid release to the environment. Refer to special instructions / Safety data sheets.

## 15.2 National Provisions

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!

Chemicals Prohibition Ordinance:

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12. BImSchV (Incident regulation):

--

Water hazard class:

--

Technical instruction of air (TA Luft):

Chapter 5.2.5 Organic Substances

Organic substances, except dusts.

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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/m<sup>3</sup>.

VCI-Storage class (TRGS 510):  
10-13

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**16. OTHER INFORMATION**

**16.1 Wording of risk phrases (H) and R-phrases with numbers and text**

R-phrases

R52/53 Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

H-phrases

H412 Harmful to aquatic life with long lasting effects cat. 3

**16.2 Training advice:**

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**16.3 Further information:**

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**16.4 Data origin:**

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

IATA Dangarous goods regulation.

[www.baua.de](http://www.baua.de)

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

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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.