



# SAFETY DATA SHEET

according to Regulation (EC) No. 1907/2006

Version 7.4

Revision Date 19.04.2023

Print Date 08.05.2024

GENERIC EU MSDS - NO COUNTRY SPECIFIC DATA - NO OEL DATA

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

### 1.1 Product identifiers

Product name : PAP pen for immunostaining

Product Number : Z672548

Brand : Sigma

REACH No. : This product is a mixture. REACH Registration Number see section 3.

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

Identified uses : Scientific research and development

### 1.3 Details of the supplier of the safety data sheet

Company : Merck Life Science S.r.l.  
Via Monte Rosa 93  
I-20149 MILANO

Telephone : +39 02 3341 7340

Fax : +39 02 3801 0737

E-mail address : [serviziotecnico@merckgroup.com](mailto:serviziotecnico@merckgroup.com)

### 1.4 Emergency telephone

Emergency Phone # : 800-789-767 (CHEMTREC Italia)  
+39-02-4555-7031 (CHEMTREC chiamate internazionali)  
+39 02-6610-1029 (Centro Antiveleni Niguarda Ca' Granda - Milano)

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

#### Classification according to Regulation (EC) No 1272/2008

Skin irritation (Category 2), H315

Eye irritation (Category 2), H319

Germ cell mutagenicity (Category 1B), H340

Carcinogenicity (Category 1B), H350

Reproductive toxicity (Category 1B), H360FD

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H336

Specific target organ toxicity - single exposure (Category 3), Respiratory system, H335  
 Specific target organ toxicity - repeated exposure, Inhalation (Category 2), Liver, Central nervous system, H373  
 Long-term (chronic) aquatic hazard (Category 3), H412  
 Hazardous to the ozone layer (Category 1), H420

For the full text of the H-Statements mentioned in this Section, see Section 16.

## 2.2 Label elements

### Labelling according Regulation (EC) No 1272/2008

Pictogram



Signal Word

Danger

Hazard statement(s)

H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	May cause respiratory irritation.
H336	May cause drowsiness or dizziness.
H340	May cause genetic defects.
H350	May cause cancer.
H360FD	May damage fertility. May damage the unborn child.
H373	May cause damage to organs (Liver, Central nervous system) through prolonged or repeated exposure if inhaled.
H412	Harmful to aquatic life with long lasting effects.
H420	Harms public health and the environment by destroying ozone in the upper atmosphere.

Precautionary statement(s)

P202	Do not handle until all safety precautions have been read and understood.
P273	Avoid release to the environment.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P502	Refer to manufacturer or supplier for information on recovery or recycling.

Supplemental Hazard Statements

none

Restricted to professional users.

### Reduced Labeling (<= 125 ml)

Pictogram



Signal Word

Danger

Hazard statement(s)

H340	May cause genetic defects.
H350	May cause cancer.
H420	Harms public health and the environment by destroying ozone

H412	in the upper atmosphere.
H360FD	Harmful to aquatic life with long lasting effects. May damage fertility. May damage the unborn child.
Precautionary statement(s)	
P202	Do not handle until all safety precautions have been read and understood.
P308 + P313	IF exposed or concerned: Get medical advice/ attention.
P502	Refer to manufacturer or supplier for information on recovery or recycling.
Supplemental Hazard Statements	none

### 2.3 Other hazards

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

Component	Classification	Concentration
<b>1-bromopropane</b> Included in the Candidate List of Substances of Very High Concern (SVHC) according to Regulation (EC) No. 1907/2006 (REACH)		
CAS-No. 106-94-5 EC-No. 203-445-0 Index-No. 602-019-00-5 *	Flam. Liq. 2; Skin Irrit. 2; Eye Irrit. 2; Carc. 2; Repr. 1B; STOT SE 3; STOT RE 2; Aquatic Chronic 3; Ozone 1; H225, H315, H319, H351, H360FD, H335, H336, H373, H412, H420	>= 50 - < 70 %
<b>Ligroine</b>		
CAS-No. 8032-32-4 EC-No. 232-453-7 Index-No. 649-263-00-9 *	Flam. Liq. 2; Muta. 1B; Carc. 1B; Asp. Tox. 1; H225, H340, H350, H304	>= 1 - < 10 %

\*A registration number is not available for this substance as the substance or its use are exempted from registration according to Article 2 REACH Regulation (EC) No 1907/2006, the annual tonnage does not require a registration or the registration is envisaged for a later registration deadline.

For the full text of the H-Statements mentioned in this Section, see Section 16.

## SECTION 4: First aid measures

### 4.1 Description of first-aid measures

#### General advice

Show this material safety data sheet to the doctor in attendance.

**If inhaled**

After inhalation: fresh air. Call in physician.

**In case of skin contact**

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Consult a physician.

**In case of eye contact**

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

**If swallowed**

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

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

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

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

No data available

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**SECTION 5: Firefighting measures****5.1 Extinguishing media****Suitable extinguishing media**

Foam Carbon dioxide (CO<sub>2</sub>) Dry powder

**Unsuitable extinguishing media**

For this substance/mixture no limitations of extinguishing agents are given.

**5.2 Special hazards arising from the substance or mixture**

Carbon oxides

Hydrogen bromide gas

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air on intense heating.

Development of hazardous combustion gases or vapours possible in the event of fire.

**5.3 Advice for firefighters**

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

**5.4 Further information**

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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**SECTION 6: Accidental release measures****6.1 Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition.

Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

## **6.2 Environmental precautions**

Do not let product enter drains.

## **6.3 Methods and materials for containment and cleaning up**

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

## **6.4 Reference to other sections**

For disposal see section 13.

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## **SECTION 7: Handling and storage**

### **7.1 Precautions for safe handling**

#### **Advice on safe handling**

Work under hood. Do not inhale substance/mixture. Avoid generation of vapours/aerosols.

#### **Advice on protection against fire and explosion**

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

#### **Hygiene measures**

Immediately change contaminated clothing. Apply preventive skin protection. Wash hands and face after working with substance.

For precautions see section 2.2.

### **7.2 Conditions for safe storage, including any incompatibilities**

#### **Storage conditions**

Tightly closed. Keep in a well-ventilated place. Keep locked up or in an area accessible only to qualified or authorized persons.

#### **Storage class**

Storage class (TRGS 510): 6.1C: Combustible, acute toxic Cat.3 / toxic compounds or compounds which causing chronic effects

### **7.3 Specific end use(s)**

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

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## **SECTION 8: Exposure controls/personal protection**

### **8.1 Control parameters**

#### **Ingredients with workplace control parameters**

### **8.2 Exposure controls**

#### **Personal protective equipment**

##### **Eye/face protection**

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

##### **Skin protection**

Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact

with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands.

The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it.

Splash contact

Material: Fluorinated rubber

Minimum layer thickness: 0,7 mm

Break through time: 240 min

Material tested: Vitoject® (KCL 890 / Aldrich Z677698, Size M)

data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374

If used in solution, or mixed with other substances, and under conditions which differ from EN 374, contact the supplier of the EC approved gloves. This recommendation is advisory only and must be evaluated by an industrial hygienist and safety officer familiar with the specific situation of anticipated use by our customers. It should not be construed as offering an approval for any specific use scenario.

### **Body Protection**

protective clothing

### **Respiratory protection**

required when vapours/aerosols are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Recommended Filter type: Filter type ABEK

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer. These measures have to be properly documented.

### **Control of environmental exposure**

Do not let product enter drains.

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## **SECTION 9: Physical and chemical properties**

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

- |  |  |
|--|--|
| a) Physical state                          | liquid   |
| b) Color                                   | dark, gray   |
| c) Odor                                    | No data available  |
| d) Melting point/freezing point            | Melting point/range: -110 °C                                   |
| e) Initial boiling point and boiling range | 71 °C at 1.013 hPa   |
| f) Flammability (solid, gas)               | No data available  |
| g) Upper/lower flammability or             | Upper explosion limit: 8 %(V)<br>Lower explosion limit: 4 %(V) |

- explosive limits
- h) Flash point 71 °C - closed cup
  - i) Autoignition temperature 490 °C
  - j) Decomposition temperature No data available
  - k) pH 7 at 20 °C
  
  - l) Viscosity Viscosity, kinematic: No data available  
Viscosity, dynamic: 40 cP at 20 °C
  - m) Water solubility insoluble
  - n) Partition coefficient: n-octanol/water No data available
  - o) Vapor pressure No data available
  - p) Density No data available  
Relative density No data available
  - q) Relative vapor density No data available
  - r) Particle characteristics No data available
  
  - s) Explosive properties Not classified as explosive.
  - t) Oxidizing properties none

## 9.2 Other safety information

No data available

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## SECTION 10: Stability and reactivity

### 10.1 Reactivity

Forms explosive mixtures with air on intense heating.  
A range from approx. 15 Kelvin below the flash point is to be rated as critical.

### 10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### 10.3 Possibility of hazardous reactions

No data available

### 10.4 Conditions to avoid

Strong heating.

### 10.5 Incompatible materials

Strong oxidizing agents

### 10.6 Hazardous decomposition products

In the event of fire: see section 5

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## SECTION 11: Toxicological information

### 11.1 Information on toxicological effects

#### Mixture

##### Acute toxicity

Oral: No data available

Symptoms: Irritations of mucous membranes in the mouth, pharynx, oesophagus and gastrointestinal tract.

Symptoms: Possible symptoms: , mucosal irritations, Cough, Shortness of breath, Possible damages: , damage of respiratory tract

Dermal: No data available

##### Skin corrosion/irritation

Remarks: Mixture causes skin irritation.

##### Serious eye damage/eye irritation

Remarks: Mixture causes serious eye irritation.

##### Respiratory or skin sensitization

No data available

##### Germ cell mutagenicity

Possible mutagen

##### Carcinogenicity

Possible carcinogen.

##### Reproductive toxicity

May harm the unborn child.

May impair fertility.

##### Specific target organ toxicity - single exposure

Mixture may cause respiratory irritation.

Mixture may cause drowsiness or dizziness.

##### Specific target organ toxicity - repeated exposure

Mixture may cause damage to organs through prolonged or repeated exposure.

- Liver, Central nervous system

##### Aspiration hazard

No data available

### 11.2 Additional Information

#### Endocrine disrupting properties

##### Product:

Assessment

The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.



To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Other dangerous properties can not be excluded.

This substance should be handled with particular care.

Handle in accordance with good industrial hygiene and safety practice.

## Components

### 1-bromopropane

#### Acute toxicity

LD50 Oral - Rat - male and female - > 2.000 mg/kg  
(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - 35 mg/l - vapor  
(OECD Test Guideline 403)

LD50 Dermal - Rat - male and female - > 2.000 mg/kg  
(OECD Test Guideline 402)

#### Skin corrosion/irritation

Remarks: Causes skin irritation.

(Regulation (EC) No 1272/2008, Annex VI)

Remarks: Drying-out effect resulting in rough and chapped skin.

Remarks: Dermatitis

#### Serious eye damage/eye irritation

Eyes - Rabbit

Result: Irritating to eyes.

Remarks: (ECHA)

Remarks: (Regulation (EC) No 1272/2008, Annex VI)

#### Respiratory or skin sensitization

Maximization Test - Guinea pig

Result: negative

(OECD Test Guideline 406)

#### Germ cell mutagenicity

Test Type: Ames test

Test system: *S. typhimurium*

Result: negative

Test Type: In vitro mammalian cell gene mutation test

Test system: Mouse lymphoma test

Result: positive

Method: OECD Test Guideline 474

Species: Mouse - male and female

Result: negative

Method: OECD Test Guideline 488

Species: Mouse - female

Result: negative

Method: OECD Test Guideline 474

Species: Mouse - male and female

Result: negative

**Carcinogenicity**

Suspected of causing cancer.

**Reproductive toxicity**

May damage the unborn child.

May damage fertility.

**Specific target organ toxicity - single exposure**

May cause respiratory irritation. - Lungs

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

May cause drowsiness or dizziness. - Central nervous system

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

Acute inhalation toxicity - Lungs

**Specific target organ toxicity - repeated exposure**

inhalation (vapor) - May cause damage to organs through prolonged or repeated exposure.

- Liver, Central nervous system

Remarks: Classified according to Regulation (EU) 1272/2008, Annex VI (Table 3.1/3.2)

**Aspiration hazard**

No data available

**Ligroine**

**Acute toxicity**

Oral: No data available

LC50 Inhalation - Rat - 4 h - 3400 ppm - vapor

Remarks: Behavioral:Convulsions or effect on seizure threshold.

Behavioral:Muscle weakness.

Dermal: No data available

LD50 Intravenous - Mouse - 40 mg/kg

**Skin corrosion/irritation**

Remarks: No data available

**Serious eye damage/eye irritation**

Remarks: No data available

**Respiratory or skin sensitization**

No data available

**Germ cell mutagenicity**

In vivo tests showed mutagenic effects

**Carcinogenicity**

Possible human carcinogen

**Reproductive toxicity**

No data available

**Specific target organ toxicity - single exposure**

No data available

### Specific target organ toxicity - repeated exposure

No data available

### Aspiration hazard

May be fatal if swallowed and enters airways.

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## SECTION 12: Ecological information

### 12.1 Toxicity

#### Mixture

No data available

### 12.2 Persistence and degradability

No data available

### 12.3 Bioaccumulative potential

No data available

### 12.4 Mobility in soil

No data available

### 12.5 Results of PBT and vPvB assessment

This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.

### 12.6 Endocrine disrupting properties

#### Product:

Assessment : The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.

### 12.7 Other adverse effects

No data available

#### Components

##### 1-bromopropane

Toxicity to fish	semi-static test LC50 - <i>Oncorhynchus mykiss</i> (rainbow trout) - 24,3 mg/l - 96 h (OECD Test Guideline 203)
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - <i>Daphnia magna</i> (Water flea) - 99,3 mg/l - 48 h (OECD Test Guideline 202)
Toxicity to algae	static test ErC50 - <i>Pseudokirchneriella subcapitata</i> (algae) - 72,3 mg/l - 96 h (OECD Test Guideline 201)
Toxicity to bacteria	static test EC50 - activated sludge - 270 mg/l - 5 min Remarks: (ECHA)



REACH - Restrictions on the manufacture, placing on the market and use of certain dangerous substances, mixtures and articles (Annex XVII)

: 1-bromopropane  
Ligroine

### National legislation

Seveso III: Directive 2012/18/EU of the European Parliament and of the Council on the control of major-accident hazards involving dangerous substances.

: Petroleum products: (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams),(d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d)

: Petroleum products: (a) gasolines and naphthas, (b) kerosenes (including jet fuels), (c) gas oils (including diesel fuels, home heating oils and gas oil blending streams),(d) heavy fuel oils (e) alternative fuels serving the same purposes and with similar properties as regards flammability and environmental hazards as the products referred to in points (a) to (d)

### Other regulations

Observe work restrictions regarding maternity protection in accordance to Dir 92/85/EEC or stricter national regulations where applicable.

Take note of Dir 94/33/EC on the protection of young people at work.

## 15.2 Chemical Safety Assessment

For this product a chemical safety assessment was not carried out

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## SECTION 16: Other information

### Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapor.
H304	May be fatal if swallowed and enters airways.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H335	Highly flammable liquid and vapor.
H336	Causes skin irritation.
H340	Causes serious eye irritation.
H350	May cause respiratory irritation.
H351	May cause drowsiness or dizziness.
H360FD	Suspected of causing cancer.
H373	May damage fertility. May damage the unborn child.
H412	May cause damage to organs (Liver, Central nervous system) through prolonged or repeated exposure if inhaled.

**Full text of other abbreviations**

ADN - European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways; ADR - Agreement concerning the International Carriage of Dangerous Goods by Road; AIIC - Australian Inventory of Industrial Chemicals; ASTM - American Society for the Testing of Materials; bw - Body weight; CMR - Carcinogen, Mutagen or Reproductive Toxicant; DIN - Standard of the German Institute for Standardisation; DSL - Domestic Substances List (Canada); ECx - Concentration associated with x% response; ELx - Loading rate associated with x% response; EmS - Emergency Schedule; ENCS - Existing and New Chemical Substances (Japan); ErCx - Concentration associated with x% growth rate response; GHS - Globally Harmonized System; GLP - Good Laboratory Practice; IARC - International Agency for Research on Cancer; IATA - International Air Transport Association; IBC - International Code for the Construction and Equipment of Ships carrying Dangerous Chemicals in Bulk; IC50 - Half maximal inhibitory concentration; ICAO - International Civil Aviation Organization; IECSC - Inventory of Existing Chemical Substances in China; IMDG - International Maritime Dangerous Goods; IMO - International Maritime Organization; ISHL - Industrial Safety and Health Law (Japan); ISO - International Organisation for Standardization; KECI - Korea Existing Chemicals Inventory; LC50 - Lethal Concentration to 50 % of a test population; LD50 - Lethal Dose to 50% of a test population (Median Lethal Dose); MARPOL - International Convention for the Prevention of Pollution from Ships; n.o.s. - Not Otherwise Specified; NO(A)EC - No Observed (Adverse) Effect Concentration; NO(A)EL - No Observed (Adverse) Effect Level; NOELR - No Observable Effect Loading Rate; NZIoC - New Zealand Inventory of Chemicals; OECD - Organization for Economic Co-operation and Development; OPPTS - Office of Chemical Safety and Pollution Prevention; PBT - Persistent, Bioaccumulative and Toxic substance; PICCS - Philippines Inventory of Chemicals and Chemical Substances; (Q)SAR - (Quantitative) Structure Activity Relationship; REACH - Regulation (EC) No 1907/2006 of the European Parliament and of the Council concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals; RID - Regulations concerning the International Carriage of Dangerous Goods by Rail; SADT - Self-Accelerating Decomposition Temperature; SDS - Safety Data Sheet; TCSI - Taiwan Chemical Substance Inventory; TECI - Thailand Existing Chemicals Inventory; TSCA - Toxic Substances Control Act (United States); UN - United Nations; UNRTDG - United Nations Recommendations on the Transport of Dangerous Goods; vPvB - Very Persistent and Very Bioaccumulative

**Classification of the mixture**

Skin Irrit.2	H315
Eye Irrit.2	H319
Muta.1B	H340
Carc.1B	H350
Repr.1B	H360FD
STOT SE3	H336
STOT SE3	H335
STOT RE2	H373
Aquatic Chronic3	H412
Ozone1	H420

**Classification procedure:**

Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method
Calculation method

**Further information**

The above information is believed to be correct but does not purport to be all inclusive and shall be used only as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See [www.sigma-aldrich.com](http://www.sigma-aldrich.com) and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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