



**Becton, Dickinson and Company**  
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## Kit Components

Kit Product No.	Kit Product Description
554714	BD Cytofix/Cytoperm™ Fixation/Permeabilization Solution Kit

Kit Component(s)	Kit Component(s) Description
51-2091KZ	BD Perm/Wash™ Buffer
51-2090KZ	BD Cytofix/Cytoperm™ Fixation and Permeabilization Solution

### IMDG

Special precautions for user: Not regulated.

### IATA

Special precautions for user: Not regulated.

Please note: If a listed component does not have a corresponding document included, this means that the product is not hazardous and does not require a Safety Data Sheet.

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# SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended

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

### 1.1 Product identifier

Product No.:	Product name:	Common name(s), synonym(s)
51-2091KZ	BD Perm/Wash™ Buffer	No data available

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

**Identified uses:** Scientific and industrial laboratory use. For research use only.

**Uses advised against:** Not for use in diagnostic or therapeutic procedures.

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

#### Manufacturer

Becton Dickinson France S.A.S. Belgian Branch  
Erembodegem-Dorp 86  
9320 Erembodegem  
Belgium

**Telephone:** 32 2 400 98 95

**Fax:** 32 2 401 70 94

**Contact Person:** BD Biosciences - Centralized European Office

Regulatory Compliance Department

**E-mail:** help.biosciences@europe.bd.com

**1.4 Emergency telephone number:** 32 2 400 98 95

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

The product has not been classified as hazardous according to the legislation in force.

**Classification according to Regulation (EC) No 1272/2008 as amended.**

Not classified

**2.2 Label Elements**

Not applicable

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### 2.3 Other hazards

#### **Endocrine Disruption-Toxicity**

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.

#### **Endocrine Disruption-Ecotoxicity**

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.

## **SECTION 3: Composition/information on ingredients**

### 3.2 Mixtures

**General information:** No hazardous ingredients.

## **SECTION 4: First aid measures**

**General:** Get medical attention if symptoms occur.

### 4.1 Description of first aid measures

**Inhalation:** Provide fresh air, warmth and rest, preferably in comfortable upright sitting position.

**Skin Contact:** Wash contact areas with soap and water. Remove contaminated clothing. Launder contaminated clothing before reuse.

**Eye contact:** Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses.

**Ingestion:** Call a physician or poison control center immediately. Only induce vomiting at the instruction of medical personnel. Never give anything by mouth to an unconscious person.

**4.2 Most important symptoms and effects, both acute and delayed:** No data available.

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

**Hazards:** No data available.

**Treatment:** No data available.

### SECTION 5: Firefighting measures

**General Fire Hazards:** Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate. Use water spray to keep fire-exposed containers cool.

**5.1 Extinguishing media**  
**Suitable extinguishing media:** Use fire-extinguishing media appropriate for surrounding materials.

**Unsuitable extinguishing media:** Not applicable

**5.2 Special hazards arising from the substance or mixture:** Fire or excessive heat may produce hazardous decomposition products.

**5.3 Advice for firefighters**  
**Special fire fighting procedures:** No unusual fire or explosion hazards noted.

**Special protective equipment for fire-fighters:** Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

### SECTION 6: Accidental release measures

**6.1 Personal precautions, protective equipment and emergency procedures:** Contact local authorities in case of spillage to drain/aquatic environment. Ensure suitable personal protection (including respiratory protection) during removal of spillages in a confined area.

**6.1.1 For non-emergency personnel:** No data available.

**6.1.2 For emergency responders:** No data available.

**6.2 Environmental Precautions:** Avoid release to the environment.

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**6.3 Methods and material for containment and cleaning up:** Absorb spillage with suitable absorbent material. Prevent runoff from entering drains, sewers, or streams. See Section 8 of the SDS for Personal Protective Equipment. For waste disposal, see section 13 of the SDS.

**6.4 Reference to other sections:** No data available.

**SECTION 7: Handling and storage:**

**7.1 Precautions for safe handling:** When using do not eat, drink or smoke. Read and follow manufacturer's recommendations. Use personal protective equipment as required.

**7.2 Conditions for safe storage, including any incompatibilities:** Store in a cool, dry place. Keep container tightly closed.

**Storage Temperature:** No data available.

**7.3 Specific end use(s):** Reserved for industrial and professional use. Read label before use.

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

**8.1 Control Parameters**  
**Occupational Exposure Limits**  
None of the components have assigned exposure limits.

**Biological Limit Values**  
No biological exposure limits noted for the ingredient(s).

**DNEL-Values**  
Remarks: DNEL-Values

Critical component	Type	Route of Exposure	Health Warnings	Remarks
Potassium chloride	Workers	Inhalation	Systemic, long-term; 1064 mg/m <sup>3</sup>	Repeated dose toxicity
	General population	Inhalation	Systemic, long-term; 273 mg/m <sup>3</sup>	Repeated dose toxicity
	General population	Inhalation	Systemic, short-term; 1365 mg/m <sup>3</sup>	Repeated dose toxicity
	General population	Dermal	Systemic, short-term; 910 mg/kg body weight/day	Repeated dose toxicity



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	Workers	Dermal	Systemic, long-term; 303 mg/kg body weight/day	Repeated dose toxicity
	General population	Oral	Systemic, short-term; 455 mg/kg body weight/day	Repeated dose toxicity
	General population	Dermal	Systemic, long-term; 182 mg/kg body weight/day	Repeated dose toxicity
	General population	Oral	Systemic, long-term; 91 mg/kg body weight/day	Repeated dose toxicity
	Workers	Dermal	Systemic, short-term; 910 mg/kg body weight/day	Repeated dose toxicity
	Workers	Inhalation	Systemic, short-term; 5320 mg/m <sup>3</sup>	Repeated dose toxicity

Disodium hydrogenorthophosphate	General population	Inhalation	Systemic, long-term; 3.04 mg/m <sup>3</sup>	Repeated dose toxicity
	Workers	Eyes	Local effect;	No hazard identified
	Workers	Inhalation	Systemic, long-term; 4.07 mg/m <sup>3</sup>	Repeated dose toxicity

Sodium chloride	Workers	Dermal	Systemic, long-term; 295.52 mg/kg body weight/day	Repeated dose toxicity
	General population	Inhalation	Systemic, long-term; 443.28 mg/m <sup>3</sup>	Repeated dose toxicity
	Workers	Inhalation	Systemic, long-term; 2068.62 mg/m <sup>3</sup>	Repeated dose toxicity
	Workers	Inhalation	Systemic, short-term; 2068.62 mg/m <sup>3</sup>	Repeated dose toxicity
	General population	Inhalation	Systemic, short-term; 443.28 mg/m <sup>3</sup>	Repeated dose toxicity



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Potassium dihydrogenorthophosphate	General population	Inhalation	Systemic, long-term; 3.04 mg/m <sup>3</sup>	Repeated dose toxicity
	Workers	Inhalation	Systemic, long-term; 4.07 mg/m <sup>3</sup>	Repeated dose toxicity

**PNEC-Values**

Remarks: PNEC-Values

Critical component	Environmental compartment	PNEC-Values	Remarks
Disodium hydrogenorthophosphate	Aquatic (freshwater)	0.05 mg/l	
	Aquatic (marine water)	0.005 mg/l	
	Sewage treatment plant	50 mg/l	

Sodium chloride	Soil	4.86 mg/kg	
	Aquatic (freshwater)	5 mg/l	
	Sewage treatment plant	500 mg/l	

Potassium dihydrogenorthophosphate	Aquatic (marine water)	0.005 mg/l	
	Sewage treatment plant	50 mg/l	
	Aquatic (freshwater)	0.05 mg/l	

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Saponins	Aquatic (intermit. releases)	0.388 mg/l	
	Aquatic (freshwater)	0.039 mg/l	
	Aquatic (marine water)	0.004 mg/l	
	Sewage treatment plant	1 mg/l	

## 8.2 Exposure controls

**Appropriate Engineering Controls:** No special requirements under ordinary conditions of use and with adequate ventilation.

### Individual protection measures, such as personal protective equipment

**Eye/face protection:** Wear safety glasses with side shields (or goggles).

**Hand Protection:** Material: Chemical resistant gloves  
Additional Information: Wash hands after contact.  
Material: Suitable gloves can be recommended by the glove supplier.

**Skin and Body Protection:** Wear a lab coat or similar protective clothing.

**Respiratory Protection:** If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

**Hygiene measures:** Observe good industrial hygiene practices.

**Environmental Controls:** No data available.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

**Physical state:** liquid  
**Form:** liquid  
**Color:** Brown





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<b>Odor:</b>	Odorless
<b>Odor Threshold:</b>	No data available.
<b>Freezing point:</b>	The physical-chemical properties of this material have not been fully investigated.
<b>Boiling Point:</b>	No data available.
<b>Flammability:</b>	Not applicable
<b>Upper/lower limit on flammability or explosive limits</b>	
<b>Explosive limit - upper:</b>	Not applicable
<b>Explosive limit - lower:</b>	Not applicable
<b>Flash Point:</b>	The physical-chemical properties of this material have not been fully investigated.
<b>Self Ignition Temperature:</b>	Not determined.
<b>Decomposition Temperature:</b>	Not applicable
<b>pH:</b>	Not applicable
<b>Viscosity</b>	
<b>Dynamic viscosity:</b>	Not determined.
<b>Kinematic viscosity:</b>	Not determined.
<b>Flow Time:</b>	Not applicable
<b>Solubility(ies)</b>	
<b>Solubility in Water:</b>	Soluble
<b>Solubility (other):</b>	The physical-chemical properties of this material have not been fully investigated.
<b>Partition coefficient (n-octanol/water):</b>	No data available.
<b>Vapor pressure:</b>	No data available.
<b>Relative density:</b>	No data available.
<b>Density:</b>	No data available.
<b>Bulk density:</b>	Not applicable
<b>Relative vapor density:</b>	Not applicable
<b>Particle characteristics</b>	
<b>Particle Size Distribution:</b>	Not applicable
<b>Specific surface area:</b>	Not applicable
<b>Surface charge/Zeta potential:</b>	Not applicable
<b>Assessment:</b>	Not applicable
<b>Shape:</b>	Not applicable
<b>Crystallinity:</b>	Not applicable



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**Surface treatment:** Not applicable

**9.2 Other information**

**Metal Corrosion:** The physical-chemical properties of this material have not been fully investigated.

**SECTION 10: Stability and reactivity**

**10.1 Reactivity:** Material is stable under normal conditions.

**10.2 Chemical Stability:** Material is stable under normal conditions.

**10.3 Possibility of hazardous reactions:** Not determined.

**10.4 Conditions to avoid:** Avoid exposure to high temperatures or direct sunlight.

**10.5 Incompatible Materials:** Metals. Water reactive material.

**10.6 Hazardous Decomposition Products:** Stable; however, may decompose if heated.

**SECTION 11: Toxicological information**

**Information on likely routes of exposure**

**Inhalation:** No data available.

**Skin Contact:** No data available.

**Eye contact:** No data available.

**Ingestion:** No data available.

**11.1 Information on toxicological effects**

**Acute toxicity (list all possible routes of exposure)**

**Oral**

**Product:** Not classified for acute toxicity based on available data.

**Dermal**

**Product:** Not classified for acute toxicity based on available data.

**Inhalation**



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**Product:** Not classified for acute toxicity based on available data.

**Repeated dose toxicity**

**Product:** No data available.

**Skin Corrosion/Irritation**

**Product:** No data available.

**Serious Eye Damage/Eye Irritation**

**Product:** No data available.

**Respiratory or Skin Sensitization**

**Product:** No data available.

**Carcinogenicity**

**Product:** No data available.

**Germ Cell Mutagenicity**

**In vitro**

**Product:** No data available.

**In vivo**

**Product:** No data available.

**Reproductive toxicity**

**Product:** No data available.

**Specific Target Organ Toxicity - Single Exposure**

**Product:** No data available.

**Specific Target Organ Toxicity - Repeated Exposure**

**Product:** No data available.

**Aspiration Hazard**

**Product:** No data available.

**11.2 Information on health hazards**

**Other hazards**

**Product:** No data available.

**Endocrine Disruption**

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**Product:** 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.;

## SECTION 12: Ecological information

### 12.1 Ecotoxicity:

#### Acute hazards to the aquatic environment:

##### Fish

**Product:** No data available.

##### Aquatic Invertebrates

**Product:** No data available.

##### Toxicity to Aquatic Plants

**Product:** No data available.

##### Toxicity to microorganisms

**Product:** No data available.

#### Chronic hazards to the aquatic environment:

##### Fish

**Product:** No data available.

##### Aquatic Invertebrates

**Product:** No data available.

##### Toxicity to Aquatic Plants

**Product:** No data available.

##### Toxicity to microorganisms

**Product:** No data available.

### 12.2 Persistence and Degradability

#### Biodegradation

**Product:** No data available.

#### BOD/COD Ratio

**Product:** No data available.



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### 12.3 Bioaccumulative potential

#### Bioconcentration Factor (BCF)

**Product:** No data available.

#### Partition Coefficient n-octanol / water (log Kow)

**Product:** Log Kow: No data available.

### 12.4 Mobility in soil:

**Product** No data available.

### 12.5 Results of PBT and vPvB assessment:

**Product** No data available.

### 12.6 Endocrine Disruption:

**Product:** 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:

#### Other hazards

**Product:** No data available.

## SECTION 13: Disposal considerations

### 13.1 Waste treatment methods

**General information:** Dispose of waste and residues in accordance with local authority requirements.

**Disposal methods:** Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**Contaminated Packaging:** No data available.



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## SECTION 14: Transport information

### ADR

14.1 UN Number:	Not regulated.
14.2 UN Proper Shipping Name:	Not regulated.
14.3 Transport Hazard Class(es)	
Class:	Not regulated.
Label(s):	Not regulated.
Hazard No. (ADR):	Not regulated.
Tunnel restriction code:	Not regulated.
14.4 Packing Group:	Not regulated.
14.5 Environmental Hazards:	Not regulated.
Marine Pollutant:	Not regulated.
14.6 Special precautions for user:	Not regulated.

### ADN

14.1 UN Number:	Not regulated.
14.2 UN Proper Shipping Name:	Not regulated.
14.3 Transport Hazard Class(es)	
Class:	Not regulated.
Label(s):	Not regulated.
Hazard No. (ADR):	Not regulated.
Tunnel restriction code:	Not regulated.
14.4 Packing Group:	Not regulated.
14.5 Environmental Hazards:	Not regulated.
Marine Pollutant:	Not regulated.
14.6 Special precautions for user:	Not regulated.

### RID

14.1 UN Number:	Not regulated.
14.2 UN Proper Shipping Name	Not regulated.
14.3 Transport Hazard Class(es)	



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Class:	Not regulated.
Label(s):	Not regulated.
14.4 Packing Group:	Not regulated.
14.5 Environmental Hazards:	Not regulated.
Marine Pollutant:	Not regulated.
14.6 Special precautions for user:	Not regulated.

**IMDG**

14.1 UN Number:	Not regulated.
14.2 UN Proper Shipping Name:	Not regulated.
14.3 Transport Hazard Class(es)	
Class:	Not regulated.
Label(s):	Not regulated.
EmS No.:	Not regulated.
14.4 Packing Group:	Not regulated.
14.5 Environmental Hazards:	Not regulated.
Marine Pollutant:	Not regulated.
14.6 Special precautions for user:	Not regulated.

**IATA**

14.1 UN Number:	Not regulated.
14.2 Proper Shipping Name:	Not regulated.
14.3 Transport Hazard Class(es):	
Class:	Not regulated.
Label(s):	Not regulated.
14.4 Packing Group:	Not regulated.
14.5 Environmental Hazards:	Not regulated.
Marine Pollutant:	Not regulated.

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14.6 Special precautions for user: Not regulated.

**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 Regulations

**Regulation 1005/2009/EC on substances that deplete the ozone layer, Annex I, Controlled Substances:** none

**Regulation 1005/2009/EC on substances that deplete the ozone layer, Annex II, New Substances:** none

**EU. REACH Annex XIV, Substances Subject to Authorization:** none

**EU. Regulation 2019/1021/EU on persistent organic pollutants (POPs) (recast), as amended:** none

**EU. Directive 2010/75/EU on Industrial Emissions (IPPC), Annex II, L 334/17:** none

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 1 as amended:** none

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 2 as amended:** none

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex I, Part 3 as amended:** none

**Regulation (EU) No. 649/2012 concerning the export and import of dangerous chemicals, Annex V as amended:** none

**EU. REACH Candidate List of Substances of Very High Concern for Authorization (SVHC):** none

**Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on marketing and use:** none



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**Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work.:** none

**Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breast feeding.:** none

**EU. Directive 2012/18/EU (SEVESO III) on major accident hazards involving dangerous substances, Annex I:**

Not applicable

**EU. Regulation No. 166/2006 PRTR (Pollutant Release and Transfer Registry), Annex II: Pollutants:** none

**Directive 98/24/EC on the protection of workers from the risks related to chemical agents at work:**

Chemical name	CAS-No.	Concentration
Sodium azide (Na(N <sub>3</sub> ))	26628-22-8	0 - <0.1%

**15.2 Chemical safety assessment:**

No Chemical Safety Assessment has been carried out.

**International regulations**

**Montreal protocol**

Not applicable

**Stockholm convention**

Not applicable

**Rotterdam convention**

Not applicable

**Kyoto protocol**

Not applicable

**SECTION 16: Other information**

**Abbreviations and acronyms:**

No data available.

**Key literature references and sources for data:**

European Chemicals Agency (ECHA): Information on Chemicals.

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**Wording of the H-statements in section 2 and 3:** none

**Training information:** No data available.

**SDS No.:** UN51-2091KZ-1157-1-01

**Disclaimer:**

**Disclaimer:**

The information contained herein has been obtained from various sources and is believed to be correct as of the date issued. However, neither BD nor any of its subsidiaries assumes any liabilities whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability for a particular use of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist. BD provides SDS in electronic form so the information may be more easily accessed. Due to the possibility of errors during transmission, BD makes no representations as to the completeness or accuracy of the information.

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# SAFETY DATA SHEET

According to Regulation (EC) No. 1907/2006 (REACH) Article 31, Annex II as amended.

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

### 1.1 Product identifier

Product No.:	Product name:	Common name(s), synonym(s)
51-2090KZ	BD Cytifix/Cytoperm™ Fixation and Permeabilization Solution	

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

**Identified uses:** Scientific and industrial laboratory use. For research use only.

**Uses advised against:** Not for use in diagnostic or therapeutic procedures.

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

#### Manufacturer

Becton Dickinson France S.A.S. Belgian  
Branch  
Erembodegem-Dorp 86  
Erembodegem 9320  
Belgium

**Telephone:** 32 2 400 98 95  
**Fax:** 32 2 401 70 94

**Contact Person:** BD Biosciences - Centralized European Office  
Regulatory Compliance Department

**E-mail:** help.biosciences@europe.bd.com

### 1.4 Emergency telephone number: 32 2 400 98 95

## SECTION 2: Hazards identification

### 2.1 Classification of the substance or mixture

The product has been classified according to the legislation in force.

**Classification according to Regulation (EC) No 1272/2008 as amended.**

#### Health Hazards

Skin sensitizer

Category 1

H317: May cause an allergic skin reaction.

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Germ Cell Mutagenicity                      Category 2                      H341: Suspected of causing genetic defects.  
Carcinogenicity                                      Category 1B                      H350: May cause cancer.

## 2.2 Label Elements

**Contains:**                                      formaldehyde...%



**Signal Word:**                                      Danger

**Hazard Statement(s):**                      H317: May cause an allergic skin reaction.  
H341: Suspected of causing genetic defects.  
H350: May cause cancer.

### Precautionary Statements

**Prevention:**                                      P201: Obtain special instructions before use.  
P202: Do not handle until all safety precautions have been read and understood.  
P261: Avoid breathing dust/fume/gas/mist/vapors/spray.  
P272: Contaminated work clothing should not be allowed out of the workplace.  
P280: Wear protective gloves/protective clothing/eye protection/face protection.

**Response:**                                      P333+P313: If skin irritation or rash occurs: Get medical advice/attention.  
P308+P313: IF exposed or concerned: Get medical advice/attention.

**Disposal:**                                      P501: Dispose of contents/container to an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

**2.3 Other hazards**                                      No data available.

## SECTION 3: Composition/information on ingredients

### 3.2 Mixtures

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Chemical name	Concentration	CAS-No.	EC No.	REACH Registration No.	M-Factor:	Notes
formaldehyd e...%	3 - <5%	50-00-0	200-001-8	No data available.	No data available.	#

\* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

# This substance has workplace exposure limit(s).

### Classification

Chemical name	CLP Classification	Notes
formaldehyde...%	Eye Dam.: 1: H318STOT SE: 3: H335Skin Sens.: 1: H317Acute Tox.: 3: H331Acute Tox.: 3: H301Muta.: 2: H341Carc.: 1B: H350Acute Tox.: 3: H311Skin Corr.: 1B: H314Aquatic Acute: 2: H401	Note B, Note D

Regulation No. 1272/2008.

Note B: Some substances (acids, bases, etc.) are placed on the market in aqueous solutions at various concentrations and, therefore, these solutions require different classification and labelling since the hazards vary at different concentrations. In Part 3 entries with Note B have a general designation of the following type: 'nitric acid...%'. In this case the supplier must state the percentage concentration of the solution on the label. Unless otherwise stated, it is assumed that the percentage concentration is calculated on a weight/weight basis.

Note D: Certain substances which are susceptible to spontaneous polymerisation or decomposition are generally placed on the market in a stabilised form. It is in this form that they are listed in Part 3. However, such substances are sometimes placed on the market in a non-stabilised form. In this case, the supplier must state on the label the name of the substance followed by the words 'non-stabilised'.

The full text for all H-statements is displayed in section 16.

## SECTION 4: First aid measures

**General:** Get medical attention if symptoms occur. May cause an allergic skin reaction. May cause cancer. Suspected of causing genetic defects.

### 4.1 Description of first aid measures



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- Inhalation:** Move to fresh air. Get medical attention if any discomfort continues.
- Eye contact:** Immediately flush with plenty of water for at least 15 minutes. If easy to do, remove contact lenses. Get medical attention promptly if symptoms occur after washing.
- Skin Contact:** Flush contaminated area with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing before reuse.
- Ingestion:** If swallowed, rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Get medical attention immediately.

**4.2 Most important symptoms and effects, both acute and delayed:** Symptoms may be delayed.

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

- Hazards:** May cause an allergic skin reaction. Suspected of causing genetic defects. May cause cancer.
- Treatment:** Wash off promptly and flush contaminated skin with water. Promptly remove clothing if soaked through and flush skin with water. Get immediate medical advice/attention.

**SECTION 5: Firefighting measures**

**General Fire Hazards:** Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate. Use water to keep fire exposed containers cool and disperse vapors.

**5.1 Extinguishing media Suitable extinguishing media:** Water spray, fog, CO<sub>2</sub>, dry chemical, or alcohol resistant foam.

**Unsuitable extinguishing media:** Avoid water in straight hose stream; will scatter and spread fire.

**5.2 Special hazards arising from the substance or mixture:** Fire or excessive heat may produce hazardous decomposition products.

**5.3 Advice for firefighters**



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**Special fire fighting procedures:** No unusual fire or explosion hazards noted.

**Special protective equipment for fire-fighters:** Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.

## SECTION 6: Accidental release measures

- 6.1 Personal precautions, protective equipment and emergency procedures:** Ensure suitable personal protection (including respiratory protection) during removal of spillages in a confined area. Contact local authorities in case of spillage to drain/aquatic environment.
- 6.2 Environmental Precautions:** Avoid release to the environment.
- 6.3 Methods and material for containment and cleaning up:** Stop leak if possible without any risk. Absorb or cover with dry earth, sand or other non-combustible material and transfer to containers. Collect for salvage or disposal. Prevent runoff from entering drains, sewers, or streams. Report spills as required to appropriate authorities. See Section 8 of the SDS for Personal Protective Equipment. For waste disposal, see section 13 of the SDS.
- 6.4 Reference to other sections:** No data available.

## SECTION 7: Handling and storage:

- 7.1 Precautions for safe handling:** Wash promptly with soap and water if skin becomes contaminated. When using do not eat, drink or smoke. Read and follow manufacturer's recommendations. Use personal protective equipment as required.
- 7.2 Conditions for safe storage, including any incompatibilities:** Store in tightly closed original container in a dry, cool and well-ventilated place.
- 7.3 Specific end use(s):** Reserved for industrial and professional use. Read label before use.

## SECTION 8: Exposure controls/personal protection

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## 8.1 Control Parameters

### Occupational Exposure Limits

Chemical name	Type	Exposure Limit Values	Source
formaldehyde...%	STEL	2 ppm      2.5 mg/m <sup>3</sup>	UK. EH40 Workplace Exposure Limits (WELs) (2007)
	TWA	2 ppm      2.5 mg/m <sup>3</sup>	UK. EH40 Workplace Exposure Limits (WELs) (2007)

### Biological Limit Values

None.

### DNEL-Values

Critical component	Type	Route of Exposure	Health Warnings	Remarks
formaldehyde...%	General population	Inhalation	Systemic, long-term; 3.2 mg/m <sup>3</sup>	Repeated dose toxicity
	Workers	Inhalation	Systemic, long-term; 9 mg/m <sup>3</sup>	Repeated dose toxicity
	Workers	Inhalation	Local, short-term; 0.375 mg/m <sup>3</sup>	
	Workers	Dermal	Systemic, long-term; 240 mg/kg body weight/day	Repeated dose toxicity
	Workers	Eyes	Local effect;	No data available
	Workers	Dermal	Local, short-term; 37 µg/cm <sup>2</sup>	
	Workers	Inhalation	Local, short-term; 0.75 mg/m <sup>3</sup>	

### PNEC-Values

Critical component	Environmental compartment	PNEC-Values	Remarks



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formaldehyde...%	Sediment (marine water)	2.3 mg/kg	
	Aquatic (freshwater)	0.44 mg/l	
	Sewage treatment plant	0.19 mg/l	
	Soil	0.2 mg/kg	
	Aquatic (marine water)	0.44 mg/l	
	Sediment (freshwater)	2.3 mg/kg	

## 8.2 Exposure controls

**Appropriate Engineering Controls:** Adequate ventilation should be provided whenever the material is heated or mists are generated.

### Individual protection measures, such as personal protective equipment

**General information:** Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing to remove contaminants. Discard contaminated footwear that cannot be cleaned.

**Eye/face protection:** Wear safety glasses with side shields (or goggles).

#### Skin protection

**Hand Protection:** Use suitable protective gloves if risk of skin contact.

**Other:** Wear appropriate clothing to prevent repeated or prolonged skin contact.

**Respiratory Protection:** If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn.

**Hygiene measures:** Do not eat, drink or smoke when using the product. Wash promptly if skin becomes contaminated. Wash at the end of each work shift and before eating, smoking and using the toilet. Avoid contact with skin.



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**Environmental Controls:** Data available upon request.

## SECTION 9: Physical and chemical properties

### 9.1 Information on basic physical and chemical properties

#### Appearance

<b>Physical state:</b>	liquid
<b>Form:</b>	liquid
<b>Color:</b>	Clear
<b>Odor:</b>	Odorless
<b>Odor Threshold:</b>	No data available.
<b>pH:</b>	Not applicable
<b>Freezing point:</b>	The physical-chemical properties of this material have not been fully investigated.
<b>Boiling Point:</b>	No data available.
<b>Flash Point:</b>	The physical-chemical properties of this material have not been fully investigated.
<b>Evaporation Rate:</b>	No data available.
<b>Flammability (solid, gas):</b>	No data available.
<b>Flammability Limit - Upper (%):</b>	No data available.
<b>Flammability Limit - Lower (%):</b>	No data available.
<b>Vapor pressure:</b>	No data available.
<b>Vapor density (air=1):</b>	No data available.
<b>Relative density:</b>	No data available.
<b>Solubility(ies)</b>	
<b>Solubility in Water:</b>	Soluble
<b>Solubility (other):</b>	The physical-chemical properties of this material have not been fully investigated.
<b>Partition coefficient (n-octanol/water):</b>	No data available.
<b>Autoignition Temperature:</b>	No data available.
<b>Decomposition Temperature:</b>	No data available.
<b>SADT:</b>	No data available.
<b>Viscosity:</b>	Not determined.
<b>Explosive properties:</b>	No data available.
<b>Oxidizing properties:</b>	No data available.

### 9.2 Other information

**VOC Content:** EC Directive 2004/42: 42.03 g/l ~4.2 %



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(calculated)

## SECTION 10: Stability and reactivity

- 10.1 Reactivity:** No data available.
- 10.2 Chemical Stability:** No data available.
- 10.3 Possibility of hazardous reactions:** None under normal conditions. Stable; however, may decompose if heated.
- 10.4 Conditions to avoid:** Avoid exposure to high temperatures or direct sunlight.
- 10.5 Incompatible Materials:** Strong oxidizing agents.
- 10.6 Hazardous Decomposition Products:** By heating and fire, harmful vapors/gases may be formed.

## SECTION 11: Toxicological information

**General information:** May cause allergic skin reaction based on human experience.

### Information on likely routes of exposure

**Inhalation:** Under normal conditions of intended use, this material is not expected to be an inhalation hazard.

**Ingestion:** Ingestion may cause irritation and malaise.

**Skin Contact:** Prolonged or repeated contact may cause skin sensitization in susceptible individuals.

**Eye contact:** Avoid contact with eyes.

### 11.1 Information on toxicological effects

#### Acute toxicity

##### Oral

**Product:** ATEmix: 2,379.25 mg/kg

##### Specified substance(s)

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formaldehyde...% LD 50 (Rat): 460 mg/kg Experimental result, Weight of Evidence study

#### **Dermal**

**Product:** ATEmix: 6,423.98 mg/kg

#### **Specified substance(s)**

formaldehyde...% LD 50 (Rabbit): 270 mg/kg

#### **Inhalation**

**Product:** ATEmix71.38 mg/l Vapour

#### **Specified substance(s)**

formaldehyde...% No data available.

#### **Repeated dose toxicity**

**Product:** No data available.

#### **Specified substance(s)**

formaldehyde...% No data available.

#### **Skin**

##### **Corrosion/Irritation:**

**Product:** No data available.

#### **Specified substance(s)**

formaldehyde...% No data available.

#### **Serious Eye Damage/Eye**

##### **Irritation:**

**Product:** No data available.

#### **Specified substance(s)**

formaldehyde...% No data available.

#### **Respiratory or Skin**

##### **Sensitization:**

**Product:** No data available.

#### **Specified substance(s)**

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formaldehyde...%

Skin sensitization:, in vivo (Guinea pig): Sensitising

### **Germ Cell Mutagenicity**

#### **In vitro**

**Product:** No data available.

#### **Specified substance(s)**

formaldehyde...% No data available.

#### **In vivo**

**Product:** No data available.

#### **Specified substance(s)**

formaldehyde...% No data available.

### **Carcinogenicity**

**Product:** No data available.

#### **Specified substance(s)**

formaldehyde...% No data available.

### **Reproductive toxicity**

**Product:** No data available.

#### **Specified substance(s)**

formaldehyde...% No data available.

### **Specific Target Organ Toxicity - Single Exposure**

**Product:** No data available.

#### **Specified substance(s)**

formaldehyde...% Inhalation - vapor: Respiratory system - Causes damage to organs.

### **Specific Target Organ Toxicity - Repeated Exposure**

**Product:** No data available.

#### **Specified substance(s)**

formaldehyde...% No data available.

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**Target Organs:**  
formaldehyde...%      Respiratory system

**Aspiration Hazard**  
**Product:**      No data available.

**Specified substance(s)**  
formaldehyde...%      No data available.

## SECTION 12: Ecological information

### 12.1 Toxicity

#### Acute toxicity

##### Fish

**Product:**      No data available.

##### Specified substance(s)

formaldehyde...%      LC 50 (Striped bass (*Morone saxatilis*), 96 h): 6.7 mg/l  
LC 50 (Black bullhead (*Ameiurus melas*), 96 h): 25 mg/l  
LC 50 (*Morone saxatilis*, 96 h): 6.7 mg/l (Static) Experimental result, Key study

##### Aquatic Invertebrates

**Product:**      No data available.

##### Specified substance(s)

formaldehyde...%      EC 50 (Water flea (*Daphnia pulex*), 48 h): 5.8 mg/l Intoxication  
EC 50 (*Daphnia pulex*, 48 h): 5.8 mg/l (Static) Experimental result, Key study

#### Chronic Toxicity

##### Fish

**Product:**      No data available.

##### Specified substance(s)

formaldehyde...%      LC 50 (*Danio rerio*, 144 h): 6.9 mg/l (semi-static) Experimental result, Supporting study

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### **Aquatic Invertebrates**

**Product:** No data available.

#### **Specified substance(s)**

formaldehyde...% LOAEL (Ceriodaphnia dubia, 7 d): 6 mg/l Experimental result, Not specified

### **Toxicity to Aquatic Plants**

**Product:** No data available.

#### **Specified substance(s)**

formaldehyde...% EC 50 (Green algae (Scenedesmus subspicatus), 72 h): 4.89 mg/l

## **12.2 Persistence and Degradability**

### **Biodegradation**

**Product:** No data available.

#### **Specified substance(s)**

formaldehyde...% Readily biodegradable  
(2 Weeks): 97 % Detected in water. Experimental result, Key study

### **BOD/COD Ratio**

**Product** No data available.

#### **Specified substance(s)**

formaldehyde...% No data available.

## **12.3 Bioaccumulative potential**

**Product:** No data available.

#### **Specified substance(s)**

formaldehyde...% Will not bio-accumulate.  
Bioconcentration Factor (BCF): < 1 Aquatic sediment  
Experimental result, Weight of Evidence study

## **12.4 Mobility in soil:**

**Product:** No data available.

#### **Specified substance(s)**

formaldehyde...% No data available.

## **12.5 Results of PBT and vPvB assessment:**

**Product:** No data available.



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**Specified substance(s)**

formaldehyde...%      Not fulfilling PBT  
(persistent/bioaccumulative/toxic)  
criteria, Not fulfilling vPvB (very  
persistent/very bioaccumulative)  
criteria

**12.6 Other adverse effects:**      No data available.

**SECTION 13: Disposal considerations**

**13.1 Waste treatment methods**

**General information:**      Dispose of waste and residues in accordance with local authority requirements.

**Disposal methods:**      Discharge, treatment, or disposal may be subject to national, state, or local laws.

Since emptied containers retain product residue, follow label warnings even after container is emptied.

**SECTION 14: Transport information**

**ADR**

- 14.1 UN Number:      Not regulated.
- 14.2 UN Proper Shipping Name:      Not regulated.
- 14.3 Transport Hazard Class(es)
  - Class:      Not regulated.
  - Label(s):      Not regulated.
  - Hazard No. (ADR):      Not regulated.
  - Tunnel restriction code:      Not regulated.
- 14.4 Packing Group:      Not regulated.
- 14.5 Environmental Hazards:
  - Marine Pollutant:      Not regulated.
- 14.6 Special precautions for user:      Not regulated.

**ADN**

- 14.1 UN Number:      Not regulated.
- 14.2 UN Proper Shipping Name:      Not regulated.
- 14.3 Transport Hazard Class(es)





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Class:	Not regulated.
Label(s):	Not regulated.
Hazard No. (ADR):	Not regulated.
Tunnel restriction code:	Not regulated.
14.4 Packing Group:	Not regulated.
14.5 Environmental Hazards:	Not regulated.
Marine Pollutant:	Not regulated.
14.6 Special precautions for user:	Not regulated.

#### **RID**

14.1 UN Number:	Not regulated.
14.2 UN Proper Shipping Name	Not regulated.
14.3 Transport Hazard Class(es)	
Class:	Not regulated.
Label(s):	Not regulated.
14.4 Packing Group:	Not regulated.
14.5 Environmental Hazards:	Not regulated.
Marine Pollutant:	Not regulated.
14.6 Special precautions for user:	Not regulated.

#### **IMDG**

14.1 UN Number:	Not regulated.
14.2 UN Proper Shipping Name:	Not regulated.
14.3 Transport Hazard Class(es)	
Class:	Not regulated.
Label(s):	Not regulated.
EmS No.:	Not regulated.
14.4 Packing Group:	Not regulated.
14.5 Environmental Hazards:	Not regulated.
Marine Pollutant:	Not regulated.



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14.6 Special precautions for user: Not regulated.

#### **IATA**

14.1 UN Number: Not regulated.  
14.2 Proper Shipping Name: Not regulated.  
14.3 Transport Hazard Class(es):  
Class: Not regulated.  
Label(s): Not regulated.  
14.4 Packing Group: Not regulated.  
14.5 Environmental Hazards:  
Marine Pollutant: Not regulated.  
14.6 Special precautions for user: Not regulated.

**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 Regulations**

**Regulation (EC) No. 2037/2000 Substances that deplete the ozone layer:** none

**Regulation (EC) No. 850/2004 on persistent organic pollutants:** none

**Regulation (EC) No. 689/2008 Import and export of dangerous chemicals:** none

**EU. REACH Candidate List of Substances of Very High Concern for Authorization (SVHC):** none

**Regulation (EC) No. 1907/2006, REACH Annex XIV Substances subject to authorisation, as amended:** none

**Regulation (EC) No. 1907/2006 Annex XVII Substances subject to restriction on**

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### marketing and use:

The packaging shall be visibly, legibly and indelibly marked as follows:  
Restricted to professional users.

Chemical name	CAS-No.	Concentration
Formaldehyde	50-00-0	1.0 - 10%

**Directive 2004/37/EC on the protection of workers from the risks related to exposure to carcinogens and mutagens at work.:** none

**Directive 92/85/EEC: on the safety and health of pregnant workers and workers who have recently given birth or are breast feeding.:** none

**Directive 96/82/EC (Seveso III): on the control of major accident hazards involving dangerous substances:** none

**EU. Regulation No. 166/2006 PRTR (Pollutant Release and Transfer Registry), Annex II: Pollutants:** none

**Directive 98/24/EC on the protection of workers from the risks related to chemical agents at work:** none

**15.2 Chemical safety assessment:** No Chemical Safety Assessment has been carried out.

## SECTION 16: Other information

**Revision Information:** Not relevant.

### References

PBT PBT: persistent, bioaccumulative and toxic substance.  
vPvB vPvB: very persistent and very bioaccumulative substance.

**Key literature references and sources for data:** No data available.

### Wording of the H-statements in section 2 and 3

H301 Toxic if swallowed.  
H311 Toxic in contact with skin.  
H314 Causes severe skin burns and eye damage.  
H317 May cause an allergic skin reaction.  
H318 Causes serious eye damage.  
H331 Toxic if inhaled.  
H335 May cause respiratory irritation.  
H341 Suspected of causing genetic defects.



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H350 May cause cancer.  
H401 Toxic to aquatic life.

**Training information:** No data available.

**Classification according to Regulation (EC) No 1272/2008 as amended.**

Skin Sens. 1, H317  
Muta. 2, H341  
Carc. 1B, H350

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