

02/14/2012

### Kit Components

Product code	Description
<b>554714</b>	<b>BD Cytotfix/Cytoperm™ Fixation/Permeabilization Kit</b>

Components:









554714a	Fixation and Permeabilization Solution(51-2090KZ)
554714b	BD Perm/Wash™Buffer (51-2091KZ)

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

- **Product identifier**
- **Product name:** *Fixation and Permeabilization Solution(51-2090KZ)*
- **Catalog number:** *554714a*
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
 BD Biosciences, Pharmingen  
 10975 Torreyana Road  
 San Diego, CA 92121-1106  
 Tel. (877)232-8995
- **Information department:** *Technical Services*
- **Emergency telephone number:**  
*In case of a chemical emergency, spill, fire, exposure, or accident please call ChemTrec at (800)424-9300 or 911*

### 2 Composition/information on ingredients

- **Chemical characterization:** *Mixtures*
- **Description:** *Mixture of the substances listed below with nonhazardous additions.*

CAS NO.	Description	%
50-00-0	formaldehyde	4.2%
		 T R23/24/25  C R34  Xn R40  Xi R43 Carc. Cat. 3  H301; H311; H331  H351  H314  H317

### 3 Hazards identification

- **Classification of the substance or mixture**



GHS08 Health hazard

H351 Suspected of causing cancer.



GHS07

H302 Harmful if swallowed.

H317 May cause an allergic skin reaction.

- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**



Xn; Harmful

R40: Limited evidence of a carcinogenic effect.



Xi; Irritant

R43: May cause sensitization by skin contact.

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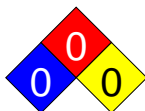
**Product name: Fixation and Permeabilization Solution(51-2090KZ)**

(Contd. of page 1)

- **Classification system:**  
*The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.*

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- **Label elements**
- **Labelling according to EU guidelines:**  
*The product has been classified and marked in accordance with regulations on hazardous materials.*
- **Code letter and hazard designation of product:**  
*Xn Harmful*
- **Hazard-determining components of labelling:**  
*formaldehyde*
- **Risk phrases:**  
*40 Limited evidence of a carcinogenic effect.*  
*43 May cause sensitization by skin contact.*
- **Safety phrases:**  
*23 Do not breathe gas/fumes/vapour/spray.*  
*36/37 Wear suitable protective clothing and gloves.*  
*60 This material and its container must be disposed of as hazardous waste.*
- **Classification system**
- **NFPA ratings (scale 0-4)**



Health = 0  
Flammability = 0  
Reactivity = 0

**4 First aid measures**

- **General information**  
*Symptoms of poisoning may even occur after several hours; therefore provide medical observation for at least 48 hours after the accident.*
- **After inhalation**  
*Supply fresh air and seek medical advice.*  
*In case of unconsciousness place patient on side position for transportation.*
- **After skin contact** *Immediately wash with water and soap and rinse thoroughly.*
- **After eye contact** *Rinse opened eye for several minutes under running water.*
- **After swallowing** *Seek immediate medical advice.*

**5 Firefighting measures**

- **Suitable extinguishing agents**  
*CO2, ABC multipurpose dry chemical or water spray. Fight larger fires with water spray or alcohol resistant foam.*
- **Special hazards arising from the substance or mixture** *No further relevant information available.*
- **Protective equipment:** *No special measures required.*

**6 Accidental release measures**

- **Personal precautions, protective equipment and emergency procedures** *Not required.*

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**Product name: Fixation and Permeabilization Solution(51-2090KZ)**

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- **Environmental precautions:** Wipe up with damp sponge or mop.
- **Methods and material for containment and cleaning up:**  
 Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders).  
 Dispose contaminated material as waste according to item 13.  
 Ensure adequate ventilation.
- **Reference to other sections**  
 See Section 7 for information on safe handling.  
 See Section 8 for information on personal protection equipment.  
 See Section 13 for disposal information.

## 7 Handling and storage

- **Handling**
- **Precautions for safe handling**  
 Ensure good ventilation/exhaustion at the workplace.  
 Prevent formation of aerosols.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage**
- **Requirements to be met by storerooms and receptacles:** 4 C
- **Information about storage in one common storage facility:** Store away from oxidizing agents.
- **Further information about storage conditions:** Store in cool, dry conditions in well sealed containers.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.

- **Components with limit values that require monitoring at the workplace:**

### 50-00-0 formaldehyde

PEL ()	Short-term value: 2 ppm Long-term value: 0.75 ppm see 29 CFR 1910.1048(c)
REL ()	Short-term value: C 0.1* ppm Long-term value: 0.016 ppm *15-min; See Pocket Guide App. A
TLV ()	Short-term value: C 0.37 mg/m <sup>3</sup> , C 0.3 ppm SEN

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal Protective Equipment**
- **General protective and hygienic measures**  
 Keep away from foodstuffs, beverages and feed.  
 Immediately remove all soiled and contaminated clothing.  
 Wash hands before breaks and at the end of work.
- **Breathing equipment:** Not required.
- **Protection of hands:**



Chemical resistant gloves (i.e. nitrile, or equivalent).

- **Eye protection:** Safety glasses

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**Product name: Fixation and Permeabilization Solution(51-2090KZ)**

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 · **Body protection:** Protective work clothing (lab coat).

### 9 Physical and chemical properties

 · **General Information**

 · **Appearance:**

<b>Form:</b>	Liquid
<b>Color:</b>	According to product specification

· <b>Odor:</b>	Characteristic
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· <b>Odour threshold:</b>	Not determined.
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· <b>pH-value:</b>	7.2-7.6
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 · **Change in condition**

<b>Melting point/Melting range:</b>	Not determined
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<b>Boiling point/Boiling range:</b>	100°C (212 °F)
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· <b>Flash point:</b>	Not applicable
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· <b>Flammability (solid, gaseous)</b>	Not applicable.
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 · **Ignition temperature:**

<b>Decomposition temperature:</b>	Not determined.
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· <b>Auto igniting:</b>	Product is not self igniting.
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· <b>Danger of explosion:</b>	Product does not present an explosion hazard.
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 · **Explosion limits:**

<b>Lower:</b>	Not determined.
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<b>Upper:</b>	Not determined.
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· <b>Vapor pressure at 20°C (68 °F):</b>	23 hPa (17 mm Hg)
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· <b>Density at 20°C (68 °F):</b>	1.00239 g/cm <sup>3</sup> (8.365 lbs/gal)
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· <b>Relative density</b>	Not determined.
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· <b>Vapour density</b>	Not determined.
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· <b>Evaporation rate</b>	Not determined.
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 · **Solubility in / Miscibility with**

<b>Water:</b>	Not miscible or difficult to mix
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· <b>Segregation coefficient (n-octanol/water):</b>	Not determined.
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 · **Viscosity:**

<b>dynamic:</b>	Not determined.
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<b>kinematic:</b>	Not determined.
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 · **Solvent content:**

<b>Organic solvents:</b>	4.2 %
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<b>Water:</b>	94.5 %
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<b>Solids content:</b>	1.2 %
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· <b>Other information</b>	No further relevant information available.
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**Product name: Fixation and Permeabilization Solution(51-2090KZ)**

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**10 Stability and reactivity**

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Incompatible materials:** Incompatible material: strong oxidizers.
- **Hazardous decomposition products:** No dangerous decomposition products known.

**11 Toxicological information**· **Acute toxicity:**· **LD/LC50 values that are relevant for classification:****50-00-0 formaldehyde**

Oral LD50 42 mg/kg (rat)

· **Primary irritant effect:**

- **on the skin:** No irritating effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:  
Irritant

**12 Ecological information**

- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Ecotoxicological effects:**
- **Other information:**  
The ecological effects have not been thoroughly investigated, but currently none have been identified.
- **Additional ecological information:**
- **General notes:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

**13 Disposal considerations**

- **Waste treatment methods**
- **Recommendation**  
Must not be disposed of with solid waste.  
Dispose of material in accordance with federal (40 CFR 261), state and local requirements.  
This product is not considered a RCRA hazardous waste.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to state and federal regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

USA

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**Product name: Fixation and Permeabilization Solution(51-2090KZ)**

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**14 Transport information**

· <b>UN-Number</b>	
· <b>DOT, ADR, ADN, IMDG, IATA</b>	Void
· <b>UN proper shipping name</b>	
· <b>DOT, ADR, ADN, IMDG, IATA</b>	Void
· <b>Transport hazard class(es)</b>	
· <b>DOT, ADR, ADN, IMDG, IATA</b>	
· <b>Class</b>	Void
· <b>Packing group</b>	
· <b>DOT, ADR, IMDG, IATA</b>	Void
· <b>Environmental hazards:</b>	
· <b>Marine pollutant:</b>	No
· <b>Special precautions for user</b>	Not applicable.
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.
· <b>UN "Model Regulation":</b>	-

**15 Regulatory information**

· <b>SARA Section 355 (extremely hazardous substances)</b>
50-00-0 formaldehyde
· <b>SARA Section 313 (specific toxic chemical listings)</b>
50-00-0 formaldehyde
· <b>TSCA (Toxic Substances Control Act)</b>
50-00-0 formaldehyde
7647-14-5 sodium chloride
7558-79-4 disodium hydrogenorthophosphate
7778-77-0 potassium phosphate, monobasic
7447-40-7 potassium chloride
7732-18-5 water
· <b>California Proposition 65 - Chemicals known to cause cancer</b>
Formaldehyde is toxic, allergenic, and is known to the state of California to cause cancer. Note: Formaldehyde poses a cancer threat through inhalation of the gas or vapor.
50-00-0 formaldehyde
· <b>Chemicals known to cause reproductive toxicity for females:</b>
None of the ingredients is listed.
· <b>Chemicals known to cause reproductive toxicity for males:</b>
None of the ingredients is listed.
· <b>Chemicals known to cause developmental toxicity:</b>
None of the ingredients is listed.

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**Product name: Fixation and Permeabilization Solution(51-2090KZ)**

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**· Carcinogenic categories**
**· IARC (International Agency for Research on Cancer)**

50-00-0 formaldehyde	I
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**· NTP (National Toxicology Program)**

50-00-0 formaldehyde	R
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**· TLV (Threshold Limit Value established by ACGIH)**

50-00-0 formaldehyde	A2
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**· Product related hazard information:**

The product has been classified and marked in accordance with regulations on hazardous materials.

**· Hazard symbols:**

Xn Harmful

**· Hazard-determining components of labeling:**

formaldehyde

**· Risk phrases:**

40 Limited evidence of a carcinogenic effect.

43 May cause sensitization by skin contact.

**· Safety phrases:**

23 Do not breathe gas/fumes/vapour/spray.

36/37 Wear suitable protective clothing and gloves.

60 This material and its container must be disposed of as hazardous waste.

**· National regulations**
**· Technical instructions (air):**

Class	Share in %
Wasser	94.5
I	4.2

· **Water hazard class:** Water hazard class 1 (Self-assessment): slightly hazardous for water.

## 16 Other information

To the best of our knowledge, the information contained herein is accurate. However, neither Becton, Dickinson and Company or any of its subsidiaries assumes any liabilities whatsoever for the accuracy or completeness of the information contained herein. Final determination of suitability 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.

· **Department issuing MSDS:** Safety and Environment Department

· **Contact:** Technical Service Representative

**· Abbreviations and acronyms:**

ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)

RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)

IMDG: International Maritime Code for Dangerous Goods

IATA: International Air Transport Association

ICAO: International Civil Aviation Organization

ACGIH: American Conference of Governmental Industrial Hygienists

CAS: Chemical Abstracts Service (division of the American Chemical Society)

NFPA: National Fire Protection Association (USA)

LC50: Lethal concentration, 50 percent

LD50: Lethal dose, 50 percent



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

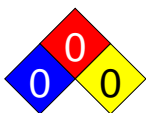
- **Product identifier**
- **Product name:** BD Perm/Wash™ Buffer (51-2091KZ)
- **Catalog number:** 554714b
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
BD Biosciences, Pharmingen  
10975 Torreyana Road  
San Diego, CA 92121-1106  
Tel. (877)232-8995
- **Information department:** Technical Services
- **Emergency telephone number:**  
In case of a chemical emergency, spill, fire, exposure, or accident please call ChemTrec at (800)424-9300 or 911

## 2 Composition/information on ingredients

- **Chemical characterization:** Mixtures
- **Description:** Mixture of the substances listed below with nonhazardous additions.
- **CAS NO. Description** % Void

## 3 Hazards identification

- **Classification of the substance or mixture**  
The product is not classified according to the Globally Harmonized System (GHS).
- **Classification according to Directive 67/548/EEC or Directive 1999/45/EC**  
This product contains no hazardous constituents, or the concentration of all chemical constituents are below the regulatory threshold limits described by Occupational Safety Health Administration Hazard Communication Standard 29 CFR 1910.1200 and the European Directive 91/155/EEC, and 93/112/EC.  
Void
- **Classification system:**  
The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.
- **Label elements**
- **Labelling according to EU guidelines:**  
Observe the general safety regulations when handling chemicals  
The product is not subject to identification regulations pertaining to regulations on hazardous materials.
- **Classification system**
- **NFPA ratings (scale 0-4)**



Health = 0  
Flammability = 0  
Reactivity = 0

## 4 First aid measures

- **General information** No special measures required.
- **After inhalation** Seek medical treatment in case of complaints.
- **After skin contact** Immediately wash with water and soap and rinse thoroughly.
- **After eye contact**  
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

(Contd. on page 2)

**Product name: BD Perm/Wash™ Buffer (51-2091KZ)**

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· **After swallowing** If symptoms persist consult doctor.

## 5 Firefighting measures

- **Suitable extinguishing agents**  
CO<sub>2</sub>, ABC multipurpose dry chemical or water spray. Fight larger fires with water spray or alcohol resistant foam.
- **Special hazards arising from the substance or mixture** Nitrogen oxides (NO<sub>x</sub>)
- **Protective equipment:** No special measures required.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures** Not required.
- **Environmental precautions:** Wipe up with damp sponge or mop.
- **Methods and material for containment and cleaning up:** No special measures required.
- **Reference to other sections**  
No dangerous substances are released.  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.

## 7 Handling and storage

- **Handling**
- **Precautions for safe handling** No special measures required.
- **Information about protection against explosions and fires:** No special measures required.
- **Storage**
- **Requirements to be met by storerooms and receptacles:** 4 C
- **Information about storage in one common storage facility:**  
Do not store together with oxidizing and acidic materials as well as heavy-metal compounds.
- **Further information about storage conditions:** Store in cool, dry conditions in well sealed containers.
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Components with limit values that require monitoring at the workplace:**  
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
- **Additional information:** The lists that were valid during the creation were used as basis.
- **Personal Protective Equipment**
- **General protective and hygienic measures**  
The usual precautionary measures for handling chemicals should be followed.
- **Breathing equipment:** Not required.
- **Protection of hands:**



Chemical resistant gloves (i.e. nitrile, or equivalent).

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USA

**Product name: BD Perm/Wash™ Buffer (51-2091KZ)**

(Contd. of page 2)

- **Eye protection:** Safety glasses
- **Body protection:** Protective work clothing (lab coat).

## 9 Physical and chemical properties

### · General Information

#### · Appearance:

· <b>Form:</b>	Liquid
· <b>Color:</b>	Gold
· <b>Odor:</b>	Characteristic
· <b>Odour threshold:</b>	Not determined.

· **pH-value:** 7.2-7.6

· <b>Change in condition</b>	Undetermined
· <b>Melting point/Melting range:</b>	Not determined
· <b>Boiling point/Boiling range:</b>	Not determined

· **Flash point:** Not applicable

· **Flammability (solid, gaseous)** Not applicable.

#### · Ignition temperature:

· **Decomposition temperature:** Not determined.

· **Auto igniting:** Product is not self igniting.

· **Danger of explosion:** Product does not present an explosion hazard.

#### · Explosion limits:

· <b>Lower:</b>	Not determined.
· <b>Upper:</b>	Not determined.

· **Vapor pressure:** Not applicable

· <b>Density:</b>	Not determined
· <b>Relative density</b>	Not determined.
· <b>Vapour density</b>	Not determined.
· <b>Evaporation rate</b>	Not determined.

#### · Solubility in / Miscibility with

· **Water:** Not miscible or difficult to mix

· **Segregation coefficient (n-octanol/water):** Not determined.

#### · Viscosity:

· <b>dynamic:</b>	Not determined.
· <b>kinematic:</b>	Not determined.

· **Other information** No further relevant information available.

## 10 Stability and reactivity

· **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.

#### · Incompatible materials:

No further relevant information available.

Incompatible materials: acidic material and metals

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**Product name: BD Perm/Wash™ Buffer (51-2091KZ)**

(Contd. of page 3)

*Incompatible material: strong oxidizers.*

· **Hazardous decomposition products:** Nitrogen oxides (NO<sub>x</sub>)

· **Additional information:**

*Sodium azide is present in this product. Contact with acidic solutions and metal compounds over time may form potentially explosive metal azides. Should any of this material be introduced into a sanitary sewer system, flush with copious amounts of water.*

### 11 Toxicological information

· **Acute toxicity:**

· **Primary irritant effect:**

· **on the skin:** No irritating effect.

· **on the eye:** No irritating effect.

· **Sensitization:** No sensitizing effects known.

· **Additional toxicological information:**

*The product is not subject to OSHA classification according to internally approved calculation methods for preparations.*

*When used and handled according to specifications, the product does not have any harmful effects according to our experience and the information provided to us.*

### 12 Ecological information

· **Aquatic toxicity:** No further relevant information available.

· **Persistence and degradability** No further relevant information available.

· **Behavior in environmental systems:**

· **Bioaccumulative potential** No further relevant information available.

· **Ecotoxicological effects:**

· **Other information:**

*The ecological effects have not been thoroughly investigated, but currently none have been identified.*

### 13 Disposal considerations

· **Waste treatment methods**

· **Recommendation**

*Smaller quantities can be disposed of with solid waste.*

*This product is not considered a RCRA hazardous waste.*

*Dispose of material in accordance with federal (40 CFR 261), state and local requirements.*

· **Uncleaned packagings:**

· **Recommendation:** Disposal must be made according to state and federal regulations.

· **Recommended cleansing agent:** Water, if necessary with cleansing agents.

### 14 Transport information

· **UN-Number**

· **DOT, ADR, ADN, IMDG, IATA** Void

· **UN proper shipping name**

· **DOT, ADR, ADN, IMDG, IATA** Void

(Contd. on page 5)

**Product name: BD Perm/Wash™ Buffer (51-2091KZ)**

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- |  |                 |
|--|-----------------|
| · <b>Transport hazard class(es)</b>  |                 |
| · <b>DOT, ADR, ADN, IMDG, IATA</b>   |                 |
| · <b>Class</b>   | Void            |
| · <b>Packing group</b>   |                 |
| · <b>DOT, ADR, IMDG, IATA</b>  | Void            |
| · <b>Environmental hazards:</b>  |                 |
| · <b>Marine pollutant:</b>   | No              |
| · <b>Special precautions for user</b>  | Not applicable. |
| · <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b> | Not applicable. |
| · <b>UN "Model Regulation":</b>  | -               |

### 15 Regulatory information

- **SARA Section 355 (extremely hazardous substances)**

None of the ingredients is listed.

- **SARA Section 313 (specific toxic chemical listings)**

None of the ingredients is listed.

- **TSCA (Toxic Substances Control Act)**

26628-22-8 | Sodium azide

- **California Proposition 65 - Chemicals known to cause cancer**

None of the ingredients is listed.

- **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

- **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

- **Chemicals known to cause developmental toxicity:**

None of the ingredients is listed.

- **Carcinogenic categories**

- **IARC (International Agency for Research on Cancer)**

None of the ingredients is listed.

- **NTP (National Toxicology Program)**

None of the ingredients is listed.

- **TLV (Threshold Limit Value established by ACGIH)**

26628-22-8 | Sodium azide

A4

- **Product related hazard information:**

Observe the general safety regulations when handling chemicals

The product is not subject to identification regulations pertaining to regulations on hazardous materials.

USA

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Printing date 02/14/2012

Reviewed on 02/14/2012

**Product name: BD Perm/Wash™ Buffer (51-2091KZ)**

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**16 Other information**

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· **Department issuing MSDS:** Safety and Environment Department

· **Contact:** Technical Service Representative

· **Abbreviations and acronyms:**

*ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)*

*RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)*

*IMDG: International Maritime Code for Dangerous Goods*

*IATA: International Air Transport Association*

*ICAO: International Civil Aviation Organization*

*ACGIH: American Conference of Governmental Industrial Hygienists*

*CAS: Chemical Abstracts Service (division of the American Chemical Society)*

*NFPA: National Fire Protection Association (USA)*

USA