

06/03/2009

Kit Components

Product code	Description
555028	Cytofix/Cytoperm Kit with GolgiPlug

Components:

555028a	BD Cytfx/Cytprm Fxtn & Permtn Soln(51-2090KZ)
555028b	GolgiPlug (51-2301KZ)
555028c	Perm/Wash Buffer (51-2091KZ)

1 Identification of substance:

- **Product name:** *BD Cytofix/Cytoperm Fixation and Permeabilization Solution (51-2090KZ)*
(Cytofix/Cytoperm Kit with GolgiPlug)
- **Catalog number:** 555028
- **Manufacturer/Supplier:**
 BD Biosciences, Pharmingen
 10975 Torreyana Road
 San Diego, CA 92121-1106
 Tel. (877)232-8995
- **Information department:** Technical Services
- **Emergency information:**
 In case of a chemical emergency, spill, fire, exposure, or accident please call ChemTrec at (800)424-9300 or 911

2 Composition/Data on components:

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

CAS NO.	Description	%
30525-89-4	paraformaldehyde Xn, Xi; R 20/22-36/37/38-40-43 Danger: Skull and crossbones 3.1.O/3, 3.1.I/4, 3.2/2, 3.3/2A, 3.4.S/1, 3.8/3 Warning: Flame 2.7/2; Health hazard 3.6/2	4.0%

3 Hazards identification

- **Hazard description:**



Xn Harmful

- **Information pertaining to particular dangers for man and environment**

R 40 Limited evidence of a carcinogenic effect.

R 43 May cause sensitization by skin contact.

- **Classification system**

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

- **NFPA ratings (scale 0-4)**



Health = 2

Fire = 0

Reactivity = 0

- **GHS label elements**



Warning

3.6/2 - Suspected of causing cancer.

Product name: BD Cytifix/Cytoperm Fixation and Permeabilization Solution (51-2090KZ)
(Cytifix/Cytoperm Kit with GolgiPlug)

(Contd. of page 1)



3.4/1 - May cause an allergic skin reaction.

Prevention:

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

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

Contaminated work clothing should not be allowed out of the workplace.

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

Use personal protective equipment as required.

Response:

IF ON SKIN: Wash with plenty of soap and water.

IF exposed or concerned: Get medical advice/attention.

Specific treatment (see on this label).

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

Wash contaminated clothing before reuse.

Storage:

Store locked up.

Disposal:

Dispose of contents/container in accordance with local/regional/national/international regulations.

4 First aid measures

· **General information** No special measures required.

After inhalation

Supply fresh air and seek medical advice.

In case of unconsciousness place patient on side position for transportation.

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.

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

5 Fire fighting measures

Suitable extinguishing agents

CO₂, ABC multipurpose dry chemical or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **Protective equipment:** No special measures required.

6 Accidental release measures

· **Person-related safety precautions:** Not required.

· **Measures for environmental protection:** Wipe up with damp sponge or mop.

· **Measures for cleaning/collecting:** No special measures required.

(Contd. on page 3)

Product name: BD Cytifix/Cytoperm Fixation and Permeabilization Solution (51-2090KZ)
(Cytifix/Cytoperm Kit with GolgiPlug)

(Contd. of page 2)

· **Additional information:** No dangerous substances are released.

7 Handling and storage

- **Handling**
- **Information 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:** Store away from oxidizing agents.
- **Further information about storage conditions:** Store in cool, dry conditions in well sealed containers.

8 Exposure controls and 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**
 Keep away from foodstuffs, beverages and feed.
 Immediately remove all soiled and contaminated clothing.
- **Breathing equipment:** Not required.
- **Protection of hands:**



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

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

9 Physical and chemical properties:

· General Information

Form:	Liquid
Color:	Clear
Odor:	Characteristic

- **Change in condition** Undetermined
- **Melting point/Melting range:** Not determined
- **Boiling point/Boiling range:** Not determined

· **Flash point:** Not applicable

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

(Contd. on page 4)

Product name: BD Cytifix/Cytoperm Fixation and Permeabilization Solution (51-2090KZ)
(Cytifix/Cytoperm Kit with GolgiPlug)

(Contd. of page 3)

- | | |
|--------------------------------------------------|-----------------------------------------------|
| · Danger of explosion: | Product does not present an explosion hazard. |
| · Vapor pressure: | Not applicable |
| · Density: | Not determined |
| · Solubility in / Miscibility with Water: | Soluble |
| · pH-value: | Not applicable |

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Materials to be avoided:** Incompatible material: strong oxidizers.
- **Dangerous reactions** No dangerous reactions known
- **Dangerous products of decomposition:**
 Carbon dioxide (CO₂)
 Paraformaldehyde

11 Toxicological information

- **Acute toxicity:**

- **LD/LC50 values that are relevant for classification:**

30525-89-4 paraformaldehyde

Oral	LD50	592 mg/kg (rat)
Dermal	LD50	500 mg/kg (rbt)

- **Primary irritant effect:**
- **on the skin:** No irritating effect.
- **on the eye:** No irritating effect.
- **Sensitization:** No sensitizing effects known.
- **Subacute to chronic toxicity:** Target organs: respiratory system

- **Additional toxicological information:**

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

12 Ecological information:

- **Ecotoxicological effects:**
- **Other information:**
 The ecological effects have not been thoroughly investigated, but currently none have been identified.

USA

(Contd. on page 5)

Product name: BD Cytofix/Cytoperm Fixation and Permeabilization Solution (51-2090KZ)
(Cytofix/Cytoperm Kit with GolgiPlug)

(Contd. of page 4)

13 Disposal considerations

- **Product:**
- **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

- **DOT regulations:**
- **Hazard class:** -
- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -
- **Maritime transport IMDG:**
- **IMDG Class:** -
- **Marine pollutant:** No
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -
- **UN "Model Regulation":** -
- **Transport/Additional information:**
If a dashed line appears in the Hazard Class section for the type of transportation, this indicates the product is not regulated for transportation. However, if a Hazard Class Number is listed the product is regulated.

15 Regulations

- **SARA Section 355 (extremely hazardous substances)**
30525-89-4 | paraformaldehyde
- **SARA Section 313 (specific toxic chemical listings)**
30525-89-4 | paraformaldehyde
- **TSCA (Toxic Substances Control Act)**
30525-89-4 | paraformaldehyde
- **California Proposition 65 - Chemicals known to cause cancer**
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. Forseeable use of this product does not pose a known cancer threat, since it contains paraformaldehyde and in the liquid, not gaseous form.
30525-89-4 | paraformaldehyde
- **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

(Contd. on page 6)

Product name: BD Cytotfix/Cytoperm Fixation and Permeabilization Solution (51-2090KZ)
(Cytotfix/Cytoperm Kit with GolgiPlug)

(Contd. of page 5)

· **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.

· **Carcinogenicity 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)**

None of the ingredients is listed.

· **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.

· **Hazard symbols:**

Xn Harmful

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

paraformaldehyde

· **Risk phrases:**

40 Limited evidence of a carcinogenic effect.

43 May cause sensitization by skin contact.

· **Safety phrases:**

2 Keep out of the reach of children.

13 Keep away from food, drink and animal feedingstuffs.

36 Wear suitable protective clothing.

37 Wear suitable gloves.

46 If swallowed, seek medical advice immediately and show this container or label.

52 Not recommended for interior use on large surface areas.

· **National regulations**

· **Technical instructions (air):**

Class	Share in %
I	4.0

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

(Contd. on page 7)

Printing date 06/03/2009

Reviewed on 06/03/2009

Product name: BD Cytofix/Cytoperm Fixation and Permeabilization Solution (51-2090KZ)
(Cytofix/Cytoperm Kit with GolgiPlug)

(Contd. of page 6)

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

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

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

USA

1 Identification of substance:

- **Product name:** GolgiPlug (51-2301KZ)
(Cytotfix/Cytoperm Kit with GolgiPlug)
- **Catalog number:** 555028
- **Manufacturer/Supplier:**
 BD Biosciences, Pharmingen
 10975 Torreyana Road
 San Diego, CA 92121-1106
 Tel. (877)232-8995
- **Information department:** Technical Services
- **Emergency information:**
 In case of a chemical emergency, spill, fire, exposure, or accident please call ChemTrec at (800)424-9300 or 911

2 Composition/Data on components:

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

CAS NO.	Description	%
67-68-5	dimethyl sulfoxide	Xi; R 36/37/38 Warning: Exclamation mark 3.2/2, 3.3/2A, 3.8/3 99.9%
20350-15-6	Brefeldin A	Xn; R 20/22 Danger: Skull and crossbones 3.1.O/3, 3.1.I/4 0.1%

3 Hazards identification

- **Hazard description:**



Xi Irritant

- **Information pertaining to particular dangers for man and environment**
 R 36/37/38 Irritating to eyes, respiratory system and skin.
- **Classification system**
 The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.
- **NFPA ratings (scale 0-4)**


 Health = 1
 Fire = 1
 Reactivity = 0

- **GHS label elements**



Warning

- 3.2/2 - Causes skin irritation.
- 3.3/2A - Causes serious eye irritation.
- 3.8/3 - May cause respiratory irritation.
- **Prevention:**
 Avoid breathing dust/fume/gas/mist/vapours/spray.

Product name: GolgiPlug (51-2301KZ)
(Cytofix/Cytoperm Kit with GolgiPlug)

(Contd. of page 1)

Wash thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.

· **Response:**

IF ON SKIN: Wash with plenty of soap and water.

IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

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

Call a **POISON CENTER** or doctor/physician if you feel unwell.

Specific treatment (see on this label).

If skin irritation occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

Take off contaminated clothing and wash before reuse.

· **Storage:**

Store in a well-ventilated place. Keep container tightly closed.

Store locked up.

· **Disposal:**

Dispose of contents/container in accordance with local/regional/national/international regulations.

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. If required, provide artificial respiration. Keep patient warm. 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 15 minutes under running water. Then consult a doctor.

· **After swallowing** Seek immediate medical advice.

· **Information for doctor** Show the product label or this MSDS.

5 Fire fighting measures

· **Suitable extinguishing agents**

CO₂, ABC multipurpose dry chemical or water spray. Fight larger fires with water spray or alcohol resistant foam.

· **Protective equipment:** No special measures required.

6 Accidental release measures

· **Person-related safety precautions:** Not required.

· **Measures for environmental protection:** Wipe up with damp sponge or mop.

· **Measures for cleaning/collecting:**

Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders).

Dispose contaminated material as waste according to item 13.

Ensure adequate ventilation.

· **Additional information:**

See Section 7 for information on safe handling.

(Contd. on page 3)

Printing date 06/03/2009

Reviewed on 06/03/2009

Product name: GolgiPlug (51-2301KZ)
 (Cytifix/Cytoperm Kit with GolgiPlug)

(Contd. of page 2)

See Section 8 for information on personal protection equipment.
 See Section 13 for disposal information.

7 Handling and storage

- **Handling**
- **Information for safe handling:** Ensure good ventilation/exhaustion at the workplace.
- **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.

8 Exposure controls and 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:**

67-68-5 dimethyl sulfoxide

WEEL 250 ppm

- **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.

Wash hands before breaks and at the end of work.

Avoid contact with the eyes and skin.

- **Breathing equipment:**

In case of brief exposure, use a chemical fume hood or a NIOSH/MSHA-approved respirator.

- **Protection of hands:**



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

- **Eye protection:** Safety glasses

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

9 Physical and chemical properties:

- **General Information**

Form:	Liquid
Color:	Gold
Odor:	Characteristic

- **Change in condition**

Melting point/Melting range: Not determined

Boiling point/Boiling range: Not determined

(Contd. on page 4)

Product name: GolgiPlug (51-2301KZ)
(Cytofix/Cytoperm Kit with GolgiPlug)

(Contd. of page 3)

· Flash point:	<i>Not applicable</i>
· Auto igniting:	<i>Product is not self igniting.</i>
· Danger of explosion:	<i>Product does not present an explosion hazard.</i>
· Vapor pressure:	<i>Not applicable</i>
· Density:	<i>Not determined</i>
· Solubility in / Miscibility with Water:	<i>Soluble</i>
· pH-value:	<i>Not applicable</i>

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** *No decomposition if used according to specifications.*
- **Materials to be avoided:** *Incompatible material: strong oxidizers.*
- **Dangerous reactions:** *No dangerous reactions known*
- **Dangerous products of decomposition:** *No dangerous decomposition products known.*

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.*
- **Subacute to chronic toxicity:** *Target organs: respiratory tract, eyes, kidneys, and skin.*
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

12 Ecological information:

- **Ecotoxicological effects:**
- **Other information:**
The ecological effects have not been thoroughly investigated, but currently none have been identified.
- **General notes:** *Water hazard class 1 (Self-assessment): slightly hazardous for water.*

13 Disposal considerations

- **Product:**
- **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.

(Contd. on page 5)

USA

Product name: GolgiPlug (51-2301KZ)
(Cytofix/Cytoperm Kit with GolgiPlug)

(Contd. of page 4)

- **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

- **DOT regulations:**
- **Hazard class:** -
- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -
- **Maritime transport IMDG:**
- **IMDG Class:** -
- **Marine pollutant:** No
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -

· **UN "Model Regulation":** -

· **Transport/Additional information:**

If a dashed line appears in the Hazard Class section for the type of transportation, this indicates the product is not regulated for transportation. However, if a Hazard Class Number is listed the product is regulated.

15 Regulations

- **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)**
67-68-5 | dimethyl sulfoxide
- **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.
- **Carcinogenicity categories**
- **IARC (International Agency for Research on Cancer)**
None of the ingredients is listed.
- **NTP (National Toxicology Program)**
None of the ingredients is listed.

(Contd. on page 6)

Product name: GolgiPlug (51-2301KZ)
(Cytofix/Cytoperm Kit with GolgiPlug)

(Contd. of page 5)

· TLV (Threshold Limit Value established by ACGIH)

None of the ingredients is listed.

· Product related hazard information:

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

· Hazard symbols:

Xi Irritant

· Hazard-determining components of labeling:

dimethyl sulfoxide

· Risk phrases:

36/37/38 Irritating to eyes, respiratory system and skin.

· Safety phrases:

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

25 Avoid contact with eyes.

26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

28 After contact with skin, wash immediately with plenty of water.

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 %
NK	90.0

· 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

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

ACGIH: American Conference of Governmental Industrial Hygienists

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

NFPA: National Fire Protection Association (USA)

1 Identification of substance:

- **Product name:** Perm/Wash Buffer (51-2091KZ)
(Cytofix/Cytoperm Kit with GolgiPlug)
- **Catalog number:** 555028
- **Manufacturer/Supplier:**
BD Biosciences, Pharmingen
10975 Torreyana Road
San Diego, CA 92121-1106
Tel. (877)232-8995
- **Information department:** Technical Services
- **Emergency information:**
In case of a chemical emergency, spill, fire, exposure, or accident please call ChemTrec at (800)424-9300 or 911

2 Composition/Data on components:

- **Chemical characterization**
- **Dangerous components:**
- **CAS NO. Description** % Void

3 Hazards identification

- **Hazard description:**
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.
- **Classification system**
The classification was made according to the latest editions of international substances lists, and expanded upon from company and literature data.
- **NFPA ratings (scale 0-4)**



- **GHS label elements** Void

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.
- **After swallowing** Immediately call a doctor.
- **Information for doctor** Show the product label or this MSDS.

5 Fire fighting measures

- **Suitable extinguishing agents**
CO₂, ABC multipurpose dry chemical or water spray. Fight larger fires with water spray or alcohol resistant foam.

Printing date 06/03/2009

Reviewed on 06/25/2007

Product name: Perm/Wash Buffer (51-2091KZ)
 (Cytotfix/Cytoperm Kit with GolgiPlug)

(Contd. of page 1)

- **Special hazards caused by the material, its products of combustion or resulting gases:** Nitrogen oxides (NOx)
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Person-related safety precautions:** Not required.
- **Measures for environmental protection:** Wipe up with damp sponge or mop.
- **Measures for cleaning/collecting:** No special measures required.
- **Additional information:** No dangerous substances are released.

7 Handling and storage

- **Handling**
- **Information 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.

8 Exposure controls and 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).

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

9 Physical and chemical properties:

· General Information

Form: Liquid
Color: Gold

(Contd. on page 3)

Printing date 06/03/2009

Reviewed on 06/25/2007

Product name: Perm/Wash Buffer (51-2091KZ)
(Cytotfix/Cytoperm Kit with GolgiPlug)

(Contd. of page 2)

Odor:	Characteristic
· Change in condition	Undetermined
· Melting point/Melting range:	Not determined
· Boiling point/Boiling range:	Not determined
· Flash point:	Not applicable
· Auto igniting:	Product is not self igniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Vapor pressure:	Not applicable
· Density:	Not determined
· Solubility in / Miscibility with Water:	Soluble
· pH-value:	Not applicable

10 Stability and reactivity

- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Materials to be avoided:**
Incompatible material: strong oxidizers.
Incompatible materials: acidic material and metals
- **Dangerous reactions** No dangerous reactions known
- **Dangerous products of decomposition:** Nitrogen oxides (NO_x)
- **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.

USA

(Contd. on page 4)

Printing date 06/03/2009

Reviewed on 06/25/2007

Product name: Perm/Wash Buffer (51-2091KZ)
 (Cytotfix/Cytoperm Kit with GolgiPlug)

(Contd. of page 3)

12 Ecological information:

- **Ecotoxicological effects:**
- **Other information:**
 The ecological effects have not been thoroughly investigated, but currently none have been identified.

13 Disposal considerations

- **Product:**
- **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

- **DOT regulations:**
- **Hazard class:** -
- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -
- **Maritime transport IMDG:**
- **IMDG Class:** -
- **Marine pollutant:** No
- **Air transport ICAO-TI and IATA-DGR:**
- **ICAO/IATA Class:** -
- **UN "Model Regulation":** -
- **Transport/Additional information:**
 If a dashed line appears in the Hazard Class section for the type of transportation, this indicates the product is not regulated for transportation. However, if a Hazard Class Number is listed the product is regulated.

15 Regulations

- **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.

(Contd. on page 5)

Product name: Perm/Wash Buffer (51-2091KZ)
(Cytofix/Cytoperm Kit with GolgiPlug)

(Contd. of page 4)

· **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.

· **Carcinogenicity 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.

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

DOT: US Department of Transportation

IATA: International Air Transport Association

IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)

ICAO: International Civil Aviation Organization

ICAO-TI: Technical Instructions by the "International Civil Aviation Organization" (ICAO)

GHS: Globally Harmonized System of Classification and Labelling of Chemicals

ACGIH: American Conference of Governmental Industrial Hygienists

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

NFPA: National Fire Protection Association (USA)