

Product code	Description
560137	GST Purification Kit

Components:

560137a	Insect Cell Lysis Buffer (51-21425A)
560137b	50X Protease Inhibitor Cocktail (51-21426Z)
560137c	Glutathione Agarose Bds(50% slurry) (51-21427B)
560137d	PBS Wash Buffer (1X) (51-21428A)
560137e	Thrombin Powder (51-21430Z)
560137f	Thrombin Dilution Buffer (51-21454A)
560137g	GST Elution Buffer (51-21455A)
560137h	Glutathione Powder (51-21429Z)

1 Identification of substance:

- **Product name:** Insect Cell Lysis Buffer (51-21425A)
(GST Purification Kit)
- **Catalog number:** 560137
- **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:** 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)**

**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** 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.

Product name: Insect Cell Lysis Buffer (51-21425A)
(GST Purification Kit)

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

(Contd. of page 1)

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:** 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**
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:	Clear

(Contd. on page 3)

Product name: Insect Cell Lysis Buffer (51-21425A)
(GST Purification Kit)

(Contd. of page 2)

Odor:	Characteristic
· Change in condition	Undetermined
· Melting point/Melting range:	Not determined
· Boiling point/Boiling range:	100°C (212°F)
· Flash point:	Not applicable
· Auto igniting:	Product is not self igniting.
· Danger of explosion:	Product does not present an explosion hazard.
· Vapor pressure at 20°C (68°F):	23 hPa (17 mm Hg)
· 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:** 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.
- **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:

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

Printing date 08/14/2007

Reviewed on 08/14/2007

Product name: Insect Cell Lysis Buffer (51-21425A)
(GST Purification Kit)

(Contd. of page 3)

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:** -

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)**
 9036-19-5 Triton X - 100
- **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.

(Contd. on page 5)

Printing date 08/14/2007

Reviewed on 08/14/2007

Product name: Insect Cell Lysis Buffer (51-21425A)
(GST Purification Kit)

(Contd. of page 4)

· 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.

· National regulations**· 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

1 Identification of substance:

- **Product name:** 50X Protease Inhibitor Cocktail (51-21426Z)
(GST Purification Kit)
- **Catalog number:** 560137
- **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:**

329-98-6	Phenylmethylsulfonylflouride	T, C; R 23/25-34	75.8%
----------	------------------------------	------------------	-------

3 Hazards identification

- **Hazard description:**



T Toxic

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

R 23/25 Toxic by inhalation and if swallowed.

R 34 Causes burns.

- **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 = 3

Fire = 0

Reactivity = 0

4 First aid measures

- **General information**

Immediately remove contaminated clothing.

Remove breathing apparatus only after contaminated clothing have been completely removed.

In case of irregular breathing or respiratory arrest provide artificial respiration.

- **After inhalation**

Supply fresh air or oxygen; and immediately call for a doctor.

(Contd. on page 2)

Product name: 50X Protease Inhibitor Cocktail (51-21426Z)
(GST Purification Kit)

(Contd. of page 1)

- 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**
If swallowed, rinse mouth with water (only if the person is conscious)
Drink copious amounts of water and provide fresh air. Immediately call a doctor.
Seek immediate medical advice.

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).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Additional information:**
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**
- **Information for safe handling:**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **Storage**
- **Requirements to be met by storerooms and receptacles:** -20° 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.

(Contd. on page 3)

Printing date 08/14/2007

Reviewed on 08/14/2007

Product name: 50X Protease Inhibitor Cocktail (51-21426Z)
(GST Purification Kit)

(Contd. of page 2)

- **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.
 Wash hands before breaks and at the end of work.
 Store protective clothing separately.
 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
 Tightly sealed goggles.
- **Body protection:** Protective work clothing (lab coat).

9 Physical and chemical properties:

· General Information	
Form:	Powder
Color:	Whitish
Odor:	Odorless
· Change in condition	
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

USA

(Contd. on page 4)

Product name: 50X Protease Inhibitor Cocktail (51-21426Z)
(GST Purification Kit)

(Contd. of page 3)

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:** Caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Toxic
Corrosive (causes skin burns)
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.

12 Ecological information:

- **General notes:**
Water hazard class 1 (Self-assessment): slightly hazardous for water.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.

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.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to state and federal regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

USA

(Contd. on page 5)

Product name: 50X Protease Inhibitor Cocktail (51-21426Z)
(GST Purification Kit)

(Contd. of page 4)

14 Transport information

· **DOT regulations:**



- **Hazard class:** 8
- **Identification number:** UN1760
- **Packing group:** II
- **Proper shipping name:** CORROSIVE LIQUID, N.O.S. (Phenylmethylsulfonylflouride)
- **Label:** 8

· **Land transport ADR/RID (cross-border)**



- **ADR/RID class:** 8 (C9) Corrosive substances
- **Danger code (Kemler):** 80
- **UN-Number:** 1760
- **Packaging group:** II
- **Description of goods:** 1760 CORROSIVE LIQUID, N.O.S. (Phenylmethylsulfonylflouride)

· **Maritime transport IMDG:**



- **IMDG Class:** 8
- **UN Number:** 1760
- **Label:** 8
- **Packaging group:** II
- **EMS Number:** F-A,S-B
- **Marine pollutant:** No
- **Proper shipping name:** CORROSIVE LIQUID, N.O.S. (Phenylmethylsulfonylflouride)

· **Air transport ICAO-TI and IATA-DGR:**



- **ICAO/IATA Class:** 8
- **UN/ID Number:** 1760
- **Label:** 8
- **Packaging group:** II
- **Proper shipping name:** CORROSIVE LIQUID, N.O.S. (Phenylmethylsulfonylflouride)

Product name: 50X Protease Inhibitor Cocktail (51-21426Z)
(GST Purification Kit)

(Contd. of page 5)

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)**

329-98-6	Phenylmethylsulfonylflouride
1670-14-0	benzamidium chloride

· **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.

· **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:**

T Toxic

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

Phenylmethylsulfonylflouride

· **Risk phrases:**

23/25 Toxic by inhalation and if swallowed.

34 Causes burns.

· **Safety phrases:**

4 Keep away from living quarters.

9 Keep container in a well-ventilated place.

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

36/37/39 Wear suitable protective clothing, gloves and eye/face protection.

45 In case of accident or if you feel unwell, seek medical advice immediately.

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

(Contd. on page 7)

Printing date 08/14/2007

Reviewed on 08/14/2007

Product name: 50X Protease Inhibitor Cocktail (51-21426Z)
(GST Purification Kit)

(Contd. of page 6)

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

Class	Share in %
I	75.8

- **Water hazard class:** Water hazard class I (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
- *** Data compared to the previous version altered.**

1 Identification of substance:

- **Product name:** *Glutathione Agarose Beads (50% slurry) (51-21427B)*
(GST Purification Kit)
- **Catalog number:** 560137
- **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:**

64-17-5	ethanol	Xn, F; R 11-40	20.0%
---------	---------	----------------	-------

3 Hazards identification

- **Hazard description:**



Xn Harmful
F Highly flammable

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

R 11 Highly flammable.
R 40 Limited evidence of a carcinogenic effect.

- **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 = 0
Fire = 3
Reactivity = 0

4 First aid measures

- **General information** No special measures required.
- **After inhalation** Supply fresh air; consult doctor in case of complaints.
- **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.

(Contd. on page 2)

Product name: Glutathione Agarose Beads (50% slurry) (51-21427B)
(GST Purification Kit)

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

(Contd. of page 1)

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.
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.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.
- **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:**

64-17-5 ethanol

PEL	1900 mg/m ³ , 1000 ppm
REL	1900 mg/m ³ , 1000 ppm
TLV	1880 mg/m ³ , 1000 ppm

(Contd. on page 3)

Product name: Glutathione Agarose Beads (50% slurry) (51-21427B)
(GST Purification Kit)

(Contd. of page 2)

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

9 Physical and chemical properties:

· General Information	
Form:	Liquid
Color:	Whitish
Odor:	Characteristic
· Change in condition	
Melting point/Melting range: Not determined	
Boiling point/Boiling range: 78°C (172°F)	
· Flash point:	13°C (55°F)
· Ignition temperature:	425°C (797°F)
· Auto igniting:	Product is not self igniting.
· Danger of explosion:	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· Explosion limits:	
Lower:	3.5 Vol %
Upper:	15.0 Vol %
· Vapor pressure at 20°C (68°F):	59 hPa (44 mm Hg)
· Density:	Not determined
· Solubility in / Miscibility with	
Water:	Soluble
· pH-value:	Not applicable

USA

(Contd. on page 4)

Product name: Glutathione Agarose Beads (50% slurry) (51-21427B)
(GST Purification Kit)

(Contd. of page 3)

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

64-17-5 ethanol

Oral	LD50	3450 mg/kg (MOU)
		7060 mg/kg (rat)

- **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: thyroid, kidney, ureter or bladder tumors.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:

12 Ecological information:

- **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.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to state and federal regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

USA

(Contd. on page 5)

Product name: Glutathione Agarose Beads (50% slurry) (51-21427B)
(GST Purification Kit)

(Contd. of page 4)

14 Transport information· **DOT regulations:**

- **Hazard class:** 3
- **Identification number:** UN1993
- **Packing group:** II
- **Proper shipping name:** FLAMMABLE LIQUID, N.O.S. (ethanol)
- **Label:** 3

· **Land transport ADR/RID (cross-border)**

- **ADR/RID class:** 3 (F1) Flammable liquids
- **Danger code (Kemler):** 33
- **UN-Number:** 1993
- **Packaging group:** II
- **Description of goods:** 1993 FLAMMABLE LIQUID, N.O.S., special provision 640D (ethanol)

· **Maritime transport IMDG:**

- **IMDG Class:** 3
- **UN Number:** 1993
- **Label:** 3
- **Packaging group:** II
- **EMS Number:** F-E,S-E
- **Marine pollutant:** No
- **Proper shipping name:** FLAMMABLE LIQUID, N.O.S. (ethanol)

· **Air transport ICAO-TI and IATA-DGR:**

- **ICAO/IATA Class:** 3
- **UN/ID Number:** 1993
- **Label:** 3
- **Packaging group:** II
- **Proper shipping name:** FLAMMABLE LIQUID, N.O.S. (ethanol)

Product name: Glutathione Agarose Beads (50% slurry) (51-21427B)
(GST Purification Kit)

(Contd. of page 5)

15 Regulations

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

None of the ingredients is listed.

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

64-17-5 | ethanol

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

64-17-5 | ethanol

· **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:**

64-17-5 | ethanol

· **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)**

64-17-5 | ethanol

A4

· **Product related hazard information:**

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

· **Hazard symbols:**

Xn Harmful

F Highly flammable

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

ethanol

· **Risk phrases:**

11 Highly flammable.

40 Limited evidence of a carcinogenic effect.

· **Safety phrases:**

7/9 Keep container tightly closed and in a well-ventilated place.

16 Keep away from sources of ignition - No smoking.

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.

(Contd. on page 7)



Printing date 08/14/2007

Reviewed on 08/14/2007

Product name: Glutathione Agarose Beads (50% slurry) (51-21427B)
(GST Purification Kit)

(Contd. of page 6)

· **National regulations**

· **Technical instructions (air):**

Class	Share in %
NK	20.0

· **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

USA

1 Identification of substance:

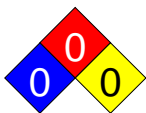
- **Product name:** PBS Wash Buffer (1X) (51-21428A)
(GST Purification Kit)
- **Catalog number:** 560137
- **Manufacturer/Supplier:**
BD Biosciences, Pharmingen
10975 Torreyana Road
San Diego, CA 92121-1106
Tel. (877)232-8995
- **Information department:** Technical Services
- **Emergency information:**
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:**
- **CAS No. Description:**
Not applicable

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



Health = 0
Fire = 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.
- **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.

(Contd. on page 2)

USA

Printing date 08/14/2007

Reviewed on 08/14/2007

Product name: PBS Wash Buffer (1X) (51-21428A)
(GST Purification Kit)

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

(Contd. of page 1)

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:** 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:** Not required.
- **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:	Clear
Odor:	Characteristic

(Contd. on page 3)

Product name: PBS Wash Buffer (1X) (51-21428A)
(GST Purification Kit)

(Contd. of page 2)

· Change in condition	Undetermined
· Melting point/Melting range:	Not determined
· Boiling point/Boiling range:	Not determined
· Flash point:	Not applicable
· 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:	7.4

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.
- **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.
The substance is not subject to classification.

12 Ecological information:

- **General notes:** Generally not hazardous for water.

13 Disposal considerations

- **Product:**
- **Recommendation**
Smaller quantities can be disposed of with solid waste.
This product is not considered a RCRA hazardous waste.

(Contd. on page 4)

Product name: PBS Wash Buffer (1X) (51-21428A)
(GST Purification Kit)

(Contd. of page 3)

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

- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -
- **Maritime transport IMDG:**
- **Marine pollutant:** No

15 Regulations

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

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

- **Carcinogenicity categories**

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

Substance is not listed.

- **NTP (National Toxicology Program)**

Substance is not listed.

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

Substance is not listed.

- **Product related hazard information:**

The substance is not subject to classification according to the sources of literature known to us.

Observe the general safety regulations when handling chemicals

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

(Contd. on page 5)



Material Safety Data Sheet
acc. to ISO/DIS 11014

Printing date 08/14/2007

Reviewed on 08/14/2007

Product name: PBS Wash Buffer (1X) (51-21428A)
(GST Purification Kit)

(Contd. of page 4)

- **National regulations**
- **Water hazard class:** Generally not 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
- *** Data compared to the previous version altered.**

USA

1 Identification of substance:

- **Product name:** *Thrombin Powder (51-21430Z)*
(GST Purification Kit)
- **Catalog number:** 560137
- **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:**
- **CAS No. Description:**
9002-04-4 Thrombin
- **Identification number(s):**
- **EINECS Number:** 232-648-7

3 Hazards identification

- **Hazard description:**



Xn Harmful

- **Information pertaining to particular dangers for man and environment**
R 36/37/38 Irritating to eyes, respiratory system and skin.
R 42/43 May cause sensitization by inhalation and skin contact.
- **NFPA ratings (scale 0-4)**



Health = 1
Fire = 0
Reactivity = 0

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.
- **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.

(Contd. on page 2)

Product name: Thrombin Powder (51-21430Z)
(GST Purification Kit)

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

(Contd. of page 1)

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.
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:** -20° 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:** Not required.
- **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.
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.

(Contd. on page 3)

Printing date 08/14/2007

Reviewed on 08/14/2007

Product name: Thrombin Powder (51-21430Z)
(GST Purification Kit)

(Contd. of page 2)

 · **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:	Powder
Color:	Whitish
Odor:	Characteristic

 · **Change in condition**

Melting point/Melting range: Not determined

Boiling point/Boiling range: Not determined

 · **Flash point:** Not applicable

 · **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:** No dangerous decomposition products known.

11 Toxicological information

 · **Acute toxicity:**

 · **LD/LC50 values that are relevant for classification:**
9002-04-4 Thrombin

Dermal	LD50	>3 mg/kg (MUS)
--------	------	----------------

 · **Primary irritant effect:**

 · **on the skin:** Irritant to skin and mucous membranes.

 · **on the eye:** Irritating effect.

(Contd. on page 4)

Printing date 08/14/2007

Reviewed on 08/14/2007

Product name: Thrombin Powder (51-21430Z)
(GST Purification Kit)

(Contd. of page 3)

- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:

12 Ecological information:

- **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.
- **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

- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -
- **Maritime transport IMDG:**
- **Marine pollutant:** No

15 Regulations

- **SARA Section 355 (extremely hazardous substances)**
Substance is not listed.
- **SARA Section 313 (specific toxic chemical listings)**
Substance is not listed.
- **TSCA (Toxic Substances Control Act)**
Substance is listed.
- **California Proposition 65 - Chemicals known to cause cancer**
Substance is not listed.
- **Chemicals known to cause reproductive toxicity for females:**
Substance is not listed.
- **Chemicals known to cause reproductive toxicity for males:**
Substance is not listed.

(Contd. on page 5)

USA

Printing date 08/14/2007

Reviewed on 08/14/2007

Product name: Thrombin Powder (51-21430Z)
(GST Purification Kit)

(Contd. of page 4)

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

Substance is not listed.

· **Carcinogenicity categories**

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

Substance is not listed.

· **NTP (National Toxicology Program)**

Substance is not listed.

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

Substance is not listed.

· **Product related hazard information:**

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

· **Hazard symbols:**

Xn Harmful

· **Risk phrases:**

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

42/43 May cause sensitization by inhalation and skin contact.

· **Safety phrases:**

22 Do not breathe dust.

24 Avoid contact with skin.

37 Wear suitable gloves.

· **National regulations**

· **Technical instructions (air):**

Class	Share in %
I	100.0

· **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

· *** Data compared to the previous version altered.**

1 Identification of substance:

- **Product name:** *Thrombin Dilution Buffer (51-21454A)*
(GST Purification Kit)
- **Catalog number:** 560137
- **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:** 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)**

**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** 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.

Printing date 08/14/2007

Reviewed on 08/14/2007

Product name: Thrombin Dilution Buffer (51-21454A)
(GST Purification Kit)

(Contd. of page 1)

· **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:** 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**
 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: Clear

(Contd. on page 3)

Product name: Thrombin Dilution Buffer (51-21454A)
(GST Purification Kit)

(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:	8

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.
- **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:

- **General notes:** Generally not hazardous for water.

USA

(Contd. on page 4)

Product name: Thrombin Dilution Buffer (51-21454A)
(GST Purification Kit)

(Contd. of page 3)

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:** -

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)**
60-00-4 | EDTA
- **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.

(Contd. on page 5)

Printing date 08/14/2007

Reviewed on 08/14/2007

Product name: Thrombin Dilution Buffer (51-21454A)
(GST Purification Kit)

(Contd. of page 4)

· 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.

· National regulations**· Water hazard class:** Generally not 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

1 Identification of substance:

- **Product name:** GST Elution Buffer (51-21455A)
(GST Purification Kit)
- **Catalog number:** 560137
- **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:**
- **CAS No. Description:**
Not applicable

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

**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** 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.

(Contd. on page 2)

USA

Product name: GST Elution Buffer (51-21455A)
(GST Purification Kit)

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

(Contd. of page 1)

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:** 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:** Not required.
- **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:	Clear
Odor:	Characteristic

(Contd. on page 3)

Product name: GST Elution Buffer (51-21455A)
(GST Purification Kit)

(Contd. of page 2)

· Change in condition	Undetermined
· Melting point/Melting range:	Not determined
· Boiling point/Boiling range:	Not determined
· Flash point:	Not applicable
· 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:	8

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.
- **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.
The substance is not subject to classification.

12 Ecological information:

- **General notes:** Generally not hazardous for water.

13 Disposal considerations

- **Product:**
- **Recommendation**
Smaller quantities can be disposed of with solid waste.
This product is not considered a RCRA hazardous waste.

(Contd. on page 4)

Product name: GST Elution Buffer (51-21455A)
(GST Purification Kit)

(Contd. of page 3)

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

- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -
- **Maritime transport IMDG:**
- **Marine pollutant:** No

15 Regulations

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

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

- **Carcinogenicity categories**

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

Substance is not listed.

- **NTP (National Toxicology Program)**

Substance is not listed.

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

Substance is not listed.

- **Product related hazard information:**

The substance is not subject to classification according to the sources of literature known to us.

Observe the general safety regulations when handling chemicals

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

(Contd. on page 5)



Material Safety Data Sheet
acc. to ISO/DIS 11014

Printing date 08/14/2007

Reviewed on 08/14/2007

Product name: GST Elution Buffer (51-21455A)
(GST Purification Kit)

(Contd. of page 4)

- **National regulations**
- **Water hazard class:** Generally not 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

USA

1 Identification of substance:

- **Product name:** Glutathione Powder (51-21429Z)
(GST Purification Kit)
- **Catalog number:** 560137
- **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:**
- **CAS No. Description:**
70-18-8 glutathione
- **Identification number(s):**
- **EINECS Number:** 200-725-4

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

**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** 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.

Product name: Glutathione Powder (51-21429Z)
(GST Purification Kit)

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

(Contd. of page 1)

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:** 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:** Not required.
- **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:	Powder
Color:	Whitish
Odor:	Characteristic

(Contd. on page 3)

Product name: Glutathione Powder (51-21429Z)
(GST Purification Kit)

(Contd. of page 2)

- | | |
|--------------------------------------------------|-----------------------------------------------|
| · Change in condition | Undetermined |
| · Melting point/Melting range: | Not determined |
| · Boiling point/Boiling range: | Not determined |
| · Flash point: | Not applicable |
| · 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:** 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.
- **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.
The substance is not subject to classification.

12 Ecological information:

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

13 Disposal considerations

- **Product:**
- **Recommendation**
Smaller quantities can be disposed of with solid waste.
This product is not considered a RCRA hazardous waste.

(Contd. on page 4)

USA

Product name: Glutathione Powder (51-21429Z)
(GST Purification Kit)

(Contd. of page 3)

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

- **Land transport ADR/RID (cross-border)**
- **ADR/RID class:** -
- **Maritime transport IMDG:**
- **Marine pollutant:** No

15 Regulations

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

Substance is not listed.

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

Substance is not listed.

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

Substance is listed.

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

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

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

Substance is not listed.

- **Carcinogenicity categories**

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

Substance is not listed.

- **NTP (National Toxicology Program)**

Substance is not listed.

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

Substance is not listed.

- **Product related hazard information:**

The substance is not subject to classification according to the sources of literature known to us.

Observe the general safety regulations when handling chemicals

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

(Contd. on page 5)



Material Safety Data Sheet
acc. to ISO/DIS 11014

Printing date 08/14/2007

Reviewed on 08/14/2007

Product name: Glutathione Powder (51-21429Z)
(GST Purification Kit)

(Contd. of page 4)

- **National regulations**
- **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

USA