

1 Identification

- **Product identifier**
 - **Product name:** BD FACS™ Permeabilizing Solution 2
 - **Catalog number:** 340973
- **Relevant identified uses of the substance or mixture and uses advised against**
 - **Sector of Use** SU24 Scientific research and development
- **Details of the supplier of the safety data sheet**
 - **Manufacturer/Supplier:**
 Becton, Dickinson and Company
 BD Biosciences
 2350 Qume Drive
 San Jose, CA 95131 USA
 Tel 877.232.8995
 bdbiosciences.com
 - **Information department:** Technical Services
- **Emergency telephone number:**
 In case of a chemical emergency, spill, fire, or exposure, call BD Biosciences at (877)232-8995, or ChemTrec at (800)424-9300.

2 Hazard(s) identification

- **Classification of the substance or mixture**



Skull and crossbones

Acute Tox. 3 H311 Toxic in contact with skin.
 Acute Tox. 3 H331 Toxic if inhaled.



Health hazard

Muta. 2 H341 Suspected of causing genetic defects.
 Carc. 1A H350 May cause cancer. Route of exposure: Inhalative.
 STOT SE 2 H371-H335 May cause damage to organs. May cause respiratory irritation.
 STOT RE 2 H373 May cause damage to the kidneys through prolonged or repeated exposure. Route of exposure: Oral.



Corrosion

Eye Dam. 1 H318 Causes serious eye damage.



Acute Tox. 4 H302 Harmful if swallowed.
 Skin Irrit. 2 H315 Causes skin irritation.
 Skin Sens. 1 H317 May cause an allergic skin reaction.

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


Xn; Harmful

R20/21/22-40-68/20/21/22: Harmful by inhalation, in contact with skin and if swallowed. Limited evidence of a carcinogenic effect. Harmful: possible risk of irreversible effects through inhalation, in contact with skin and if swallowed.



Xi; Irritant

R36/37/38-43: Irritating to eyes, respiratory system and skin. 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.

 · **Label elements**

 · **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

 · **Hazard pictograms** GHS05, GHS06, GHS08

 · **Signal word** Danger

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

diethylene glycol

formaldehyde

methanol

 · **Hazard statements**

Harmful if swallowed.

Toxic in contact with skin or if inhaled.

Causes skin irritation.

Causes serious eye damage.

May cause an allergic skin reaction.

Suspected of causing genetic defects.

May cause cancer. Route of exposure: Inhalative.

May cause damage to organs. May cause respiratory irritation.

May cause damage to the kidneys through prolonged or repeated exposure. Route of exposure: Oral.

 · **Precautionary statements**

Wear protective gloves / eye protection.

Wear protective clothing.

Avoid breathing mist/vapours/spray.

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

Continue rinsing.

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

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

 · **Classification system**

 · **NFPA ratings (scale 0-4)**


Health = 3

Flammability = 2

Reactivity = 0

 · **Other hazards**

 · **Results of PBT and vPvB assessment**

 · **PBT:** Not applicable.

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 · **vPvB:** Not applicable.

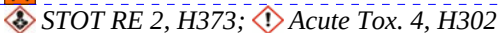
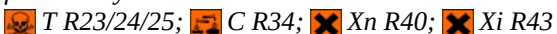
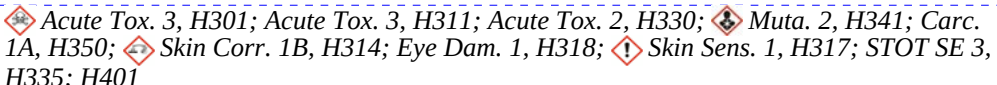
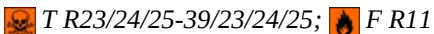
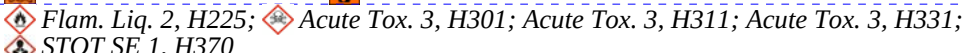
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3 Composition/information on ingredients

 · **Chemical characterization: Mixtures**

 · **Description:** Mixture of the substances listed below with nonhazardous additions.

 · **Dangerous components:**

111-46-6	diethylene glycol  Xn R22  STOT RE 2, H373;  Acute Tox. 4, H302	30.0%
50-00-0	formaldehyde  T R23/24/25;  C R34;  Xn R40;  Xi R43 Carc. Cat. 3  Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 2, H330;  Muta. 2, H341; Carc. 1A, H350;  Skin Corr. 1B, H314; Eye Dam. 1, H318;  Skin Sens. 1, H317; STOT SE 3, H335; H401	9.99%
67-56-1	methanol  T R23/24/25-39/23/24/25;  F R11  Flam. Liq. 2, H225;  Acute Tox. 3, H301; Acute Tox. 3, H311; Acute Tox. 3, H331;  STOT SE 1, H370	3.51%

4 First-aid measures

 · **Description of first aid measures**

 · **General information**

Symptoms of poisoning may even occur after several hours; therefore provide medical observation for at least 48 hours after the accident.

 · **After inhalation**

Supply fresh air and seek medical advice.

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

 · **After skin contact**

Immediately wash with water and soap and rinse thoroughly.

If skin irritation continues, consult a doctor.

 · **After eye contact** Flush immediately with water for 15 minutes, and consult a doctor.

 · **After swallowing** Drink copious amounts of water and provide fresh air. Immediately call a doctor.

 · **Most important symptoms and effects, both acute and delayed** No further relevant information available.

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

No further relevant information available.

5 Fire-fighting measures

 · **Extinguishing media**

 · **Suitable extinguishing agents**

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

 · **Special hazards arising from the substance or mixture** No further relevant information available.

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- **Advice for firefighters**
- **Protective equipment:** No special measures required.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
 The usual precautionary measures for handling chemicals should be followed.
 See Section 8 for information on personal protection equipment.
- **Environmental precautions:** No special measures required.
- **Methods and material for containment and cleaning up:**
 Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders).
 Dispose contaminated material as waste according to item 13.
 Ensure adequate ventilation.
- **Reference to other sections**
 See Section 7 for information on safe handling.
 See Section 8 for information on personal protection equipment.
 See Section 13 for disposal information.

7 Handling and storage

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

8 Exposure controls/personal protection

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

· Components with limit values that require monitoring at the workplace:	
111-46-6 diethylene glycol	
WEEL ()	Long-term value: 10 mg/m ³
67-56-1 methanol	
PEL ()	Long-term value: 260 mg/m ³ , 200 ppm
REL ()	Short-term value: 325 mg/m ³ , 250 ppm Long-term value: 260 mg/m ³ , 200 ppm Skin
TLV ()	Short-term value: 328 mg/m ³ , 250 ppm Long-term value: 262 mg/m ³ , 200 ppm Skin; BEI

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· Ingredients with biological limit values:
67-56-1 methanol

BEI ()	15 mg/L
	Medium: urine
	Time: end of shift
	Parameter: Methanol (background, nonspecific)

· Additional information: The lists that were valid during the creation were used as basis.

· Exposure controls
· 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: Use suitable respiratory protective device in case of insufficient ventilation.

· 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
· Information on basic physical and chemical properties
· General Information
· Appearance:

· Form:	Liquid
· Color:	Clear
· Odor:	Characteristic
· Odour threshold:	Not determined

· pH-value: Not determined

· Change in condition

· Melting point/Melting range:	Not determined
· Boiling point/Boiling range:	Not determined

· Flash point: > 64 °C (> 147 °F)

· Flammability (solid, gaseous) Not applicable

· Ignition temperature: Not determined

· Decomposition temperature: Not determined

· Auto igniting: Product is not self igniting.

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· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
· Lower:	Not determined
· Upper:	Not determined
· Vapor pressure:	Not applicable
· Density:	Not determined
· Relative density	Not determined
· Vapour density	Not determined
· Evaporation rate	Not determined
· Solubility in / Miscibility with	
· Water:	Soluble
· Partition coefficient (n-octanol/water):	Not determined
· Viscosity:	
· dynamic:	Not determined
· kinematic:	Not determined
· Solvent content:	
· Organic solvents:	43.5 %
· Water:	53.4 %
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No dangerous reactions known
- **Chemical stability**
 - **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** Incompatible material: strong oxidizers.
- **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**

· LD/LC50 values that are relevant for classification:		
111-46-6 diethylene glycol		
Oral	LD50	12565 mg/kg (rat)
Dermal	LD50	11890 mg/kg (rbt)
50-00-0 formaldehyde		
Oral	LD50	460 mg/kg (rat)
Dermal	LD50	270 mg/kg (Rabbit)

- **Primary irritant effect:**
 - **on the skin:** Irritant to skin and mucous membranes.
 - **on the eye:** Strong irritant with the danger of severe eye injury.

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- **Sensitization:** Sensitization possible through skin contact.
- **Additional toxicological information:** Irritant
- **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)		
50-00-0	formaldehyde	1
· NTP (National Toxicology Program)		
50-00-0	formaldehyde	R
· OSHA-Ca (Occupational Safety & Health Administration)		
50-00-0	formaldehyde	

12 Ecological information

- **Toxicity**
 - **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
 - **Other information:**
The ecological effects have not been thoroughly investigated, but currently none have been identified.
- **Additional ecological information:**
 - **General notes:** Water hazard class 2 (Self-assessment): hazardous for water.
- **Results of PBT and vPvB assessment**
 - **PBT:** Not applicable.
 - **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

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

14 Transport information

· UN-Number	
· DOT, ADR, ADN, IMDG, IATA	Void
· UN proper shipping name	
· DOT, ADR, ADN, IMDG, IATA	Void

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- | | |
|--|--|
| · Transport hazard class(es) | |
| · DOT, ADR, ADN, IMDG, IATA | |
| · Class | Void |
| · Packing group | |
| · DOT, ADR, IMDG, IATA | Void |
| · Environmental hazards: | |
| · Marine pollutant: | No |
| · Special precautions for user | Not applicable. |
| · Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code | Not applicable. |
| · Transport/Additional information: | |
| · DOT | |
| · Quantity limitations | On passenger aircraft/rail: Void
On cargo aircraft only: Void |
| · UN "Model Regulation": | - |

15 Regulatory information

· Safety, health and environmental regulations/legislation specific for the substance or mixture

· SARA Section 355 (extremely hazardous substances)

50-00-0	formaldehyde
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· SARA Section 313 (specific toxic chemical listings)

50-00-0	formaldehyde
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67-56-1	methanol
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· TSCA (Toxic Substances Control Act)

111-46-6	diethylene glycol
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50-00-0	formaldehyde
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67-56-1	methanol
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9005-64-5	Polyoxethylenesorbitan Monolaurate (Tween-20)
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9041-08-1	Heparin Sodium
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7732-18-5	water
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· California Proposition 65 - Chemicals known to cause cancer

50-00-0	formaldehyde
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· Chemicals known to cause reproductive toxicity for females:

None of the ingredients is listed.	
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· Chemicals known to cause reproductive toxicity for males:

None of the ingredients is listed.	
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· Chemicals known to cause developmental toxicity:

67-56-1	methanol
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 · **Carcinogenic categories**

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

50-00-0 formaldehyde

A2

 · **GHS label elements** The product is classified and labeled according to the Globally Harmonized System (GHS).

 · **Hazard pictograms** GHS05, GHS06, GHS08

 · **Signal word** Danger

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

diethylene glycol

formaldehyde

methanol

 · **Hazard statements**

Harmful if swallowed.

Toxic in contact with skin or if inhaled.

Causes skin irritation.

Causes serious eye damage.

May cause an allergic skin reaction.

Suspected of causing genetic defects.

May cause cancer. Route of exposure: Inhalative.

May cause damage to organs. May cause respiratory irritation.

May cause damage to the kidneys through prolonged or repeated exposure. Route of exposure: Oral.

 · **Precautionary statements**

Wear protective gloves / eye protection.

Wear protective clothing.

Avoid breathing mist/vapours/spray.

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

Continue rinsing.

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

IF SWALLOWED: Call a POISON CENTER/doctor if you feel unwell.

 · **National regulations**

 · **Technical instructions (air):**

Class	Share in %
Wasser	53.4
I	13.5
NK	30.0

 · **Water hazard class:** Water hazard class 2 (Self-assessment): hazardous for water.

 · **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

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.

 · **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)

IMDG: International Maritime Code for Dangerous Goods

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**Safety Data Sheet**
acc. to ISO/11014:2009

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DOT: US Department of Transportation
IATA: International Air Transport Association
ACGIH: American Conference of Governmental Industrial Hygienists
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
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
Flam. Liq. 2: Flammable liquids, Hazard Category 2
Acute Tox. 3: Acute toxicity, Hazard Category 3
Acute Tox. 4: Acute toxicity, Hazard Category 4
Acute Tox. 2: Acute toxicity, Hazard Category 2
Skin Corr. 1B: Skin corrosion/irritation, Hazard Category 1B
Skin Irrit. 2: Skin corrosion/irritation, Hazard Category 2
Eye Dam. 1: Serious eye damage/eye irritation, Hazard Category 1
Skin Sens. 1: Sensitisation - Skin, Hazard Category 1
Muta. 2: Germ cell mutagenicity, Hazard Category 2
Carc. 1A: Carcinogenicity, Hazard Category 1A
STOT SE 1: Specific target organ toxicity - Single exposure, Hazard Category 1
STOT SE 2: Specific target organ toxicity - Single exposure, Hazard Category 2
STOT SE 3: Specific target organ toxicity - Single exposure, Hazard Category 3
STOT RE 2: Specific target organ toxicity - Repeated exposure, Hazard Category 2
: Hazardous to the aquatic environment - AcuteHazard, Category 2

USA