



# SAFETY DATA SHEET

according to the (US) Hazard Communication Standard (29 CFR 1910.1200)

Revision Date 06/25/2014

Version 1.1

## SECTION 1. Identification

### Product identifier

Product number BI0832  
Product name Deblock Reagent 3% (v/v) Dichloroacetic Acid <br/>in Toluene For  
DNA Synthesis Novabiochem®

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

Identified uses Reagent for analysis

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

Company EMD Millipore Corporation | 290 Concord Road, Billerica, MA 01821,  
United States of America | General Inquiries: +1-978-715-4321 |  
Monday to Friday, 9:00 AM to 4:00 PM Eastern Time (GMT-5)

Emergency telephone 800-424-9300 CHEMTREC (USA)  
+1-703-527-3887 CHEMTREC (International)  
24 Hours/day; 7 Days/week

## SECTION 2. Hazards identification

### GHS Classification

Flammable liquid, Category 2, H225  
Skin corrosion, Category 1A, H314  
Reproductive toxicity, Category 2, H361  
Specific target organ systemic toxicity - single exposure, Category 3, Central nervous system, H336  
Specific target organ systemic toxicity - repeated exposure, Category 2, H373  
Aspiration hazard, Category 1, H304

For the full text of the H-Statements mentioned in this Section, see Section 16.

### GHS-Labeling

*Hazard pictograms*



*Signal Word*  
Danger

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## *Hazard Statements*

H225 Highly flammable liquid and vapor.

H304 May be fatal if swallowed and enters airways.

H314 Causes severe skin burns and eye damage.

H336 May cause drowsiness or dizziness.

H361 Suspected of damaging fertility or the unborn child.

H373 May cause damage to organs through prolonged or repeated exposure.

## *Precautionary Statements*

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P240 Ground/bond container and receiving equipment.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

P314 Get medical advice/ attention if you feel unwell.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

## **OSHA Hazards**

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200). This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS and may deviate from the GHS information.

## **Other hazards**

None known.

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

### **Hazardous ingredients**

*Chemical Name ( Concentration)*

CAS-No.

*toluene ( >= 90 % - <= 100 % )*

108-88-3

Exact percentages are being withheld as a trade secret.

*Dichloro acetic acid ( >= 5 % - < 10 % )*

79-43-6

Exact percentages are being withheld as a trade secret.

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## **SECTION 4. First aid measures**

### **Description of first-aid measures**

*General advice*

First aider needs to protect himself.

*Inhalation*

After inhalation: fresh air. Call in physician.

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### *Skin contact*

After skin contact: wash off with plenty of water. Immediately remove contaminated clothing. If available swab with polyethylene glycol 400. Call a physician immediately.

### *Eye contact*

After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist.

### *Ingestion*

After swallowing: caution if victim vomits. Risk of aspiration! Keep airways free. Pulmonary failure possible after aspiration of vomit. Call a physician immediately.

Never give anything by mouth to an unconscious person.

### **Most important symptoms and effects, both acute and delayed**

Irritation and corrosion, drowsiness, Drowsiness, Cough, Shortness of breath  
Risk of blindness!

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

No information available.

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## **SECTION 5. Fire-fighting measures**

### **Extinguishing media**

#### *Suitable extinguishing media*

Carbon dioxide (CO<sub>2</sub>), Foam, Dry powder

#### *Unsuitable extinguishing media*

For this substance/mixture no limitations of extinguishing agents are given.

### **Special hazards arising from the substance or mixture**

Combustible.

Vapors are heavier than air and may spread along floors.

Forms explosive mixtures with air at ambient temperatures.

Pay attention to flashback.

Development of hazardous combustion gases or vapors possible in the event of fire.

Fire may cause evolution of:

Hydrogen chloride gas

### **Advice for firefighters**

#### *Special protective equipment for fire-fighters*

Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing.

#### *Further information*

Remove container from danger zone and cool with water. Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

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## **SECTION 6. Accidental release measures**

### **Personal precautions, protective equipment and emergency procedures**

Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.

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Advice for emergency responders:

Protective equipment see section 8.

## Environmental precautions

Do not let product enter drains. Risk of explosion.

## Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material (e.g. Chemizorb®). Dispose of properly. Clean up affected area.

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## SECTION 7. Handling and storage

### Precautions for safe handling

Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols.

Observe label precautions.

#### *Advice on protection against fire and explosion*

Keep away from open flames, hot surfaces and sources of ignition. Take precautionary measures against static discharge.

### Conditions for safe storage, including any incompatibilities

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition.

Store at room temperature.

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## SECTION 8. Exposure controls/personal protection

### Exposure limit(s)

#### Ingredients

Basis	Value	Threshold limits	Remarks
<i>toluene 108-88-3</i>			
ACGIH	Time Weighted Average (TWA):	20 ppm	
NIOSH/GUIDE	Recommended exposure limit (REL):	100 ppm 375 mg/m <sup>3</sup>	
	Short Term Exposure Limit (STEL):	150 ppm 560 mg/m <sup>3</sup>	
Z1A	Time Weighted Average (TWA):	100 ppm 375 mg/m <sup>3</sup>	
	Short Term Exposure Limit (STEL):	150 ppm 560 mg/m <sup>3</sup>	
OSHA/Z2	Ceiling Limit Value:	300 ppm	
	Time Weighted Average (TWA):	200 ppm	
	Maximum concentration:	500 ppm	Ceiling Limit Value 10 minutes
<i>Dichloro acetic acid 79-43-6</i>			
ACGIH	Time Weighted Average (TWA): Skin designation:	0.5 ppm	Can be absorbed through the skin.

### Engineering measures

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

### Individual protection measures

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

### Hygiene measures

Immediately change contaminated clothing. Apply skin- protective barrier cream. Wash hands and face after working with substance.

### Eye/face protection

Tightly fitting safety goggles

### Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

### Other protective equipment:

Flame retardant antistatic protective clothing

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## *Respiratory protection*

required when vapors/aerosols are generated.

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

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## **SECTION 9. Physical and chemical properties**

Physical state	liquid
Color	clear
Odor	No strong odor known.
Odor Threshold	No information available.
pH	No information available.
Melting point	No information available.
Boiling point	No information available.
Flash point	39 °F ( 4 °C)
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	No information available.
Upper explosion limit	No information available.
Vapor pressure	No information available.
Relative vapor density	No information available.
Density	No information available.
Relative density	No information available.
Water solubility	No information available.
Partition coefficient: n- octanol/water	No information available.
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	No information available.

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Explosive properties

Not classified as explosive.

Oxidizing properties

none

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## SECTION 10. Stability and reactivity

### Reactivity

Vapors may form explosive mixture with air.

### Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

### Possibility of hazardous reactions

Dangerous reactions are not expected handling the product according to its intended use.

### Conditions to avoid

Warming.

### Incompatible materials

no information available

### Hazardous decomposition products

in the event of fire: See section 5.

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## SECTION 11. Toxicological information

### Information on toxicological effects

#### *Likely route of exposure*

Eye contact, Skin contact

#### *Target Organs*

Eyes

Skin

Respiratory system

Central nervous system

Liver

Kidneys

#### *Acute inhalation toxicity*

Symptoms: mucosal irritations, Cough, Shortness of breath, Possible damages:, damage of respiratory tract

#### *Skin irritation*

Mixture causes severe burns.

#### *Eye irritation*

Mixture causes serious eye damage.

Risk of blindness!

#### *Specific target organ systemic toxicity - single exposure*

The substance or mixture is not classified as specific target organ toxicant, single exposure.

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### *Specific target organ systemic toxicity - repeated exposure*

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

### *Aspiration hazard*

Regarding the available data the classification criteria are not fulfilled.

## **Carcinogenicity**

IARC	Group 2B: Possibly carcinogenic to humans Dichloro acetic acid 79-43-6
OSHA	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.
NTP	No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.
ACGIH	Confirmed animal carcinogen with unknown relevance to humans. Dichloro acetic acid 79-43-6

## **Further information**

Handle in accordance with good industrial hygiene and safety practice.

## **Ingredients**

### *toluene*

#### *Acute oral toxicity*

LD50 rat: 636 mg/kg (IUCLID)

#### *Acute inhalation toxicity*

LC50 rat: 28.1 mg/l; 4 h (IUCLID)

#### *Acute dermal toxicity*

LD50 rabbit: 12,124 mg/kg (IUCLID)

#### *Skin irritation*

rabbit

Result: Irritations

OECD Test Guideline 404

#### *Eye irritation*

rabbit

Result: Eye irritation

OECD Test Guideline 405

(Regulation (EC) No 1272/2008, Annex VI)

#### *Germ cell mutagenicity*

##### *Genotoxicity in vitro*

Mutagenicity (mammal cell test): micronucleus.

Result: negative

(IUCLID)

#### Ames test

Result: negative

(Lit.)

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## *Dichloro acetic acid*

### *Acute oral toxicity*

LD50 rat: 2,820 mg/kg (RTECS)

### *Acute dermal toxicity*

LD50 rabbit: 801 mg/kg (RTECS) (Regulation (EC) No 1272/2008, Annex VI)

### *Germ cell mutagenicity*

#### *Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: positive

(National Toxicology Program)

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## SECTION 12. Ecological information

### **Ecotoxicity**

No information available.

### **Persistence and degradability**

No information available.

### **Bioaccumulative potential**

No information available.

### **Mobility in soil**

No information available.

### *Additional ecological information*

Discharge into the environment must be avoided.

## **Ingredients**

### *toluene*

#### *Toxicity to fish*

LC50 Oncorhynchus mykiss (rainbow trout): 5.8 mg/l; 96 h (ECOTOX Database)

#### *Toxicity to daphnia and other aquatic invertebrates*

EC50 Daphnia magna (Water flea): 6 mg/l; 48 h (ECOTOX Database)

NOEC E.sulcatum: 456 mg/l; 72 h (IUCLID)

#### *Toxicity to algae*

IC50 Pseudokirchneriella subcapitata (green algae): 12 mg/l; 72 h (Lit.)

#### *Toxicity to bacteria*

EC50 Photobacterium phosphoreum: 20 mg/l; 30 min (Lit.)

#### *Theoretical oxygen demand (ThOD)*

3,130 mg/g

(Lit.)

#### *Distribution among environmental compartments*

Adsorption/Soil

log Koc: 2.15

(experimental)

Moderately mobile in soils (Lit.)

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*Henry constant*

683 Pa\*m<sup>3</sup>/mol

(Lit.) Distribution preferentially in air.

*Dichloro acetic acid*

*Toxicity to daphnia and other aquatic invertebrates*

EC50 Daphnia magna (Water flea): 106 mg/l; 24 h (ECOTOX Database)

*Toxicity to bacteria*

EC0 Bacteria: 100 - 1,000 mg/l (External MSDS)

*Biodegradability*

98 %; 14 d

OECD Test Guideline 301C

Readily biodegradable.

*Partition coefficient: n-octanol/water*

log Pow: 0.92

(experimental)

(Lit.)

Bioaccumulation is not expected.

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## SECTION 13. Disposal considerations

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

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## SECTION 14. Transport information

### Land transport (DOT)

UN number

UN 2924

Proper shipping name

FLAMMABLE LIQUID, CORROSIVE, N.O.S. ( CONT.  
TOLUENE, DICHLOROACETIC ACID)

Class

3 ( 8)

Packing group

II

Environmentally hazardous

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### Air transport (IATA)

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**UN number** UN 2924  
**Proper shipping name** FLAMMABLE LIQUID, CORROSIVE, N.O.S. ( CONT. TOLUENE, DICHLOROACETIC ACID)  
**Class** 3 ( 8)  
**Packing group** II  
**Environmentally hazardous** --  
**Special precautions for user** no

### Sea transport (IMDG)

**UN number** UN 2924  
**Proper shipping name** FLAMMABLE LIQUID, CORROSIVE, N.O.S. ( CONT. TOLUENE, DICHLOROACETIC ACID)  
**Class** 3 ( 8)  
**Packing group** II  
**Environmentally hazardous** --  
**Special precautions for user** yes  
**EmS** F-E S-C  
**Segregation Group** 0001 Acids

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## SECTION 15. Regulatory information

### United States of America

#### OSHA Hazards

Carcinogen  
Target organ effects  
Harmful if swallowed.  
Toxic by skin absorption  
Corrosive to skin  
Corrosive to eyes  
Corrosive by inhalation.  
Teratogen

This information is based on 29 CFR 1910.1200 criteria prior to adoption of the GHS, and may deviate from the GHS information on the label and in section 2.

#### SARA 311/312 Hazards

Acute Health Hazard  
Chronic Health Hazard

#### SARA 313

The following components are subject to reporting levels established by SARA Title III, Section 313:

##### *Ingredients*

toluene 108-88-3 95 %

#### SARA 302

SARA 302: No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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**Clean Water Act**

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

*Ingredients*

toluene

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

*Ingredients*

toluene

**DEA List I**

Not listed

**DEA List II**

Listed

*Ingredients*

toluene

108-88-3

**US State Regulations**

**Massachusetts Right To Know**

*Ingredients*

toluene

**Pennsylvania Right To Know**

*Ingredients*

toluene

Dichloro acetic acid

**New Jersey Right To Know**

*Ingredients*

toluene

Dichloro acetic acid

**California Prop 65 Components**

WARNING: This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

*Ingredients*

toluene

Dichloro acetic acid

**Notification status**

TSCA:

All components of the product are listed in the TSCA-inventory.

DSL:

All components of this product are on the Canadian DSL.

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**SECTION 16. Other information**

**Training advice**

Provide adequate information, instruction and training for operators.

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## Full text of H-Statements referred to under sections 2 and 3.

H225	Highly flammable liquid and vapor.
H304	May be fatal if swallowed and enters airways.
H314	Causes severe skin burns and eye damage.
H336	May cause drowsiness or dizziness.
H361	Suspected of damaging fertility or the unborn child.
H373	May cause damage to organs through prolonged or repeated exposure.

## Key or legend to abbreviations and acronyms used in the safety data sheet

Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

Revision Date 06/25/2014

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The information contained herein is based on the present state of our knowledge. It characterizes the product with regard to appropriate safety precautions. It does not represent a warranty of any product properties and we assume no liability for any loss or injury which may result from the use of this information. Users should conduct their own investigations to determine the suitability of the information.

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