



# Material Safety Data Sheet

*n*-Butyldiethanolamine

Revision Date 25-Aug-2010

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

**Product Name** **n-Butyldiethanolamine**

**Use of the Substance/Preparation** Additive

**Company/Undertaking Identification** **Taminco Higher Amines, Inc.**  
Two Windsor Plaza, Suite 411  
7540 Windsor Drive  
Allentown, PA 18195  
(800) 223-3258

**Emergency telephone number** In case of emergency call CHEMTREC 1-800-424-9300  
703-527-3887 (International Calls), 02-8014-4880 (Australia local calls)

## 2. HAZARDS IDENTIFICATION

**Appearance** Clear, Colorless to light yellow liquid

**Emergency Overview**

- DANGER!
- Causes eye burns
- Mild skin irritant
- May be harmful if swallowed
- Vapors and/or aerosols which may be formed at elevated temperatures may be irritating to eyes and respiratory tract
- The substance is identified as a hazardous chemical according to the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200)

**Principal Routes of Exposure**

- Skin contact
- Eye contact
- Inhalation

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %
N-Butyldiethanolamine	102-79-4	99

## 4. FIRST AID MEASURES

**Ingestion**

- If victim is conscious
- Rinse mouth
- drink 1 or 2 glasses of water
- Do not induce vomiting
- Never give anything by mouth to an unconscious person
- Seek immediate medical attention/advice

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**Skin Contact**

- Immediately flush skin with running water for 15 minutes or until no traces remain. Wash with soap and water. Remove contaminated clothing immediately.
- Obtain medical attention

**Eye Contact**

- Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 30 minutes.
- Immediate medical attention is required

**Inhalation**

- Move to fresh air
- If breathing is difficult, give oxygen
- If not breathing, give artificial respiration
- Obtain medical attention

**5. FIRE-FIGHTING MEASURES****Suitable Extinguishing Media**

- Alcohol-resistant foam
- carbon dioxide (CO<sub>2</sub>)
- water spray
- dry chemical

**Specific methods**

- In case of fire, stop leak if safe to do so
- Evacuate personnel to safe areas
- Keep product and empty container away from heat and sources of ignition
- Cool containers / tanks with water spray
- Do not allow run-off from fire fighting to enter drains or water courses

**Special protective equipment for fire-fighters**

- Firefighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent)
- Wash/Decontaminate removed clothing before reuse

**Specific hazards**

- Heating or fire can release toxic gas
- Carbon oxides
- Nitrogen oxides (NO<sub>x</sub>)

**6. ACCIDENTAL RELEASE MEASURES****Personal Precautions**

- Ventilate the area
- Evacuate personnel to safe areas
- Keep people away from and upwind of spill/leak
- Do not breathe vapors or spray mist
- Eliminate all ignition sources if safe to do so
- Avoid contact with skin, eyes and clothing

**Environmental Precautions**

- Should not be released into the environment
- Do not flush into surface water or sanitary sewer system
- Local authorities should be advised if significant spillages cannot be contained

**Methods for Clean-up**

- Prevent product from entering drains
- Large spills should be collected mechanically (remove by pumping) for disposal
- Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container

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## 7. HANDLING AND STORAGE

**Storage**

- Technical measures/Precautions**
- In accordance with local and national regulations
  - Keep away from open flames, hot surfaces and sources of ignition
  - Keep containers tightly closed in a dry, cool and well-ventilated place
  - Protect containers from physical damage

**Incompatible products**

- Strong acids and oxidizing agents
- Peroxides
- Per chlorates
- Do not use sodium nitrite or other nitro sating agents in product

**Handling**

- Technical measures/Precautions**
- In accordance with local and national regulations
  - Use only in area provided with appropriate exhaust ventilation
  - Ensure that eyewash stations and safety showers are close to the workstation location

**Safe handling advice**

- Use only in area provided with appropriate exhaust ventilation
- Wear personal protective equipment
- Avoid contact with skin, eyes and clothing
- Avoid breathing vapors or mists
- In case of insufficient ventilation, wear suitable respiratory equipment
- Wash thoroughly after handling
- Empty containers retain product residue and may be hazardous

## 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Chemical Name	ACGIH TLV	OSHA PEL
N-Butyldiethanolamine	Not listed	None Established

**Respiratory Protection**

- Avoid breathing vapors or mists
- In case of insufficient ventilation wear suitable respiratory equipment
- The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace
- In accordance with local and national regulations
- wear respiratory protection
- a respirator with filter for organic vapor
- In case of higher concentration
- wear a positive-pressure supplied-air respirator with full facepiece
- self-contained breathing apparatus

**Engineering measures**

- Local exhaust

**Personal Protective Equipment****Eye Protection**

- Face-shield
- Chemical resistant goggles must be worn
- Ensure that eyewash stations and safety showers are close to the workstation location

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- Hand protection**
- Impervious gloves
  - Choose body protection according to the amount and concentration of the dangerous substance at the work place
- Skin Protection**
- Solvent-resistant apron and boots
  - Choose body protection according to the amount and concentration of the dangerous substance at the work place
- Environmental exposure controls**
- Prevent product from entering drains
  - Do not contaminate surface water
  - Avoid subsoil penetration

**9. PHYSICAL AND CHEMICAL PROPERTIES****General Information**

<b>Physical State</b>	Liquid
<b>Color</b>	Colorless to light yellow
<b>Odor</b>	Slight

**Important Health Safety and Environmental Information**

<b>Boiling Point/Range</b>	283°C 541°F
<b>Flash Point</b>	141°C 286°F
<b>Method</b>	Tag closed cup
<b>Viscosity</b>	100 mPas @ 15°C
<b>Vapor Pressure</b>	< 0.01 mmHg @ 25 °C
<b>Vapor Density</b>	5.5 g/cm <sup>3</sup>
<b>Partition Coefficient (n-octanol/water)</b>	log Pow 0.48
<b>pH</b>	pKa 8.9
<b>Water solubility</b>	Completely soluble
<b>Oxidizing Properties</b>	Not applicable
<b>Evaporation Rate</b>	No information available
<b>Melting Point/Range</b>	-70°C -94°F
<b>Density</b>	0.98 g/mL @ 20 °C
<b>Flammability</b>	no data available
<b>Autoignition Temperature</b>	No data available

**10. STABILITY AND REACTIVITY**

- Stability**
- Stable under normal conditions
- Conditions to Avoid**
- Keep away from open flames, hot surfaces and sources of ignition
  - Peroxides
  - Per chlorates
  - strong oxidizing agents
  - Do not use sodium nitrite or other nitro sating agents in product

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**Hazardous Decomposition Products**

- None under normal use
- Heating or fire can release toxic gas
- Ammonia
- Carbon oxides
- nitrogen oxides (NOx)

**Hazardous Polymerization** Hazardous polymerization does not occur.

**11. TOXICOLOGICAL INFORMATION**

**Eye Contact** Corrosive to eyes, Severe eye irritation, Causes eye burns

**Skin Contact** May cause slight irritation.

**Inhalation** At atmospheric temperature, this product has only a minimal risk of inhalation due to its low vapor pressure. Move to fresh air in case of accidental inhalation of fumes from overheating or combustion.

**Ingestion** May be harmful if swallowed.

**Chronic Effects** None known.

**Carcinogenicity** The table below indicates whether each agency has listed any ingredient as a carcinogen.

Chemical Name	IARC	ACGIH	OSHA	NTP
N-Butyldiethanolamine	Not Listed	Not Listed	Not Listed	Not Listed

**Aggravated Medical Conditions** No information available.

**Product Information**

**LD50/oral/rat =** 4250 mg/kg

**LD50/dermal/rabbit =** > 2000 mg/kg

**LC50 Inhalation** An LC50/inhalation/8h/rat could not be determined because no mortality of rats was observed at the maximum achievable concentration

**Eye irritation** Corrosive

**Skin irritation** Slight irritation

**Sensitization** negative

**Mutagenic Effects** Not mutagenic in AMES Test

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## 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

<b>Toxicity to fish</b>	No information available
<b>Toxicity to daphnia</b>	No information available
<b>Toxicity to algae</b>	No information available
<b>Toxicity to bacteria</b>	No information available

**Mobility**

No information available

**Persistence and Degradability**

no data available

**Bioaccumulative Potential**

minimum

## 13. DISPOSAL CONSIDERATIONS

<b>Waste disposal methods</b>	Dispose of in accordance with local regulations
<b>Contaminated Packaging</b>	Dispose of in accordance with local regulations. Empty containers retain product residue and may be hazardous. Empty containers should be taken for local recycling, recovery or waste disposal.

## 14. TRANSPORT INFORMATION

<b><u>DOT</u></b>	Not regulated
<b>Reportable Quantity (RQ)</b>	None
<b>Marine Pollutant</b>	No

<b><u>IMDG/IMO</u></b>	Not regulated
<b>Marine Pollutant</b>	No

<b><u>IATA</u></b>	Not regulated
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## 15. REGULATORY INFORMATION

**International Inventories**

**All of the components in the product are on the following Inventory lists:** U.S.A. (TSCA), Europe (EINECS/ELINCS/NLP), Canada (DSL/NDSL), Japan (ENCS), Australia (AICS), Philippines (PICCS), China (IECSC), Korea (KECL), New Zealand (NZIoC).

**NOTE: X = Listed**

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Chemical Name	TSCA	EINECS	DSL	ENCS	MITI	AICS	PICCS	IECSC	KECL	NZIoC
N-Butyldiethanolamine	X	X	X	X		X	X	X	X	HSR-002503

**OSHA HAZARD CLASSIFICATION:** This material is classified as hazardous under Federal OSHA regulation: Corrosive (eye)

**SARA 311/312 Hazardous Categorization**

Acute Health Hazard

**SARA TITLE III SECTION 313 INFORMATION:**

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

NOTE: X = Listed

**CERCLA Hazardous Substances**

This product does not contain any RQs or TPQs under this regulation.

**State Right-to-Know**

NOTE: X = Listed

Chemical Name	PA	NJ	MA
N-Butyldiethanolamine 102-79-4	X	Not Listed	X

**California Proposition 65**

This product does not contain any Proposition 65 chemicals.

**WHMIS Hazard Class**

D2B Toxic materials

**Canadian Environmental Protection Act**

This product has been classified according to the hazard criteria of the CPR and the MSDS contains all of the information required by the CPR

**16. OTHER INFORMATION**

<b>HMIS</b>	<b>Health 3</b>	<b>Flammability 1</b>	<b>Physical Hazard 0</b>
<b>NFPA</b>	<b>Health 3</b>	<b>Fire 1</b>	<b>Instability 0</b>

Legend: 0 - Minimal; 1 - Slight; 2 - Moderate; 3 - Serious; 4 - Severe

**Literary Reference**

-Taminco Proprietary Studies

**Disclaimer:** The information provided on this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

*End of Safety Data Sheet*

Dear business partner<(>,<)>

Please find enclosed the material safety data sheet which has been generated by our automatic distribution system. This document is sent to you because you buy this product for the first time or there has been an update of the previous version. We would like to ask you to pass this information through to the people of your organization physically working with our product and your health and safety department.

If you or one of your colleagues have questions for us on the content of this document, you are welcome to contact our regulatory department (see-mail addresses below) or your local Taminco sales manager.

We hope that we have been of assistance to you by providing this updated information.

Kind regards<(>,<)>  
The Taminco Team

Computer generated letter bearing no signature.

Our order number: N/A  
Your order number: N/A





# Material Safety Data Sheet

*Synergex*

Revision Date 25-Aug-2010

## 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND THE COMPANY/UNDERTAKING

**Product Name** Synergex

**Use of the Substance/Preparation** Chemical intermediate

**Company/Undertaking Identification** **Taminco Higher Amines, Inc.**  
Two Windsor Plaza, Suite 411  
7540 Windsor Drive  
Allentown, PA 18195  
(800) 223-3258

**Emergency telephone number** In case of emergency call CHEMTREC 1-800-424-9300  
703-527-3887 (International Calls), 02-8014-4880 (Australia local calls)

## 2. HAZARDS IDENTIFICATION

**Appearance** Colorless to light yellow liquid

**Emergency Overview**

- DANGER!
- Corrosive
- Causes skin and eye burns
- Vapors and/or aerosols which may be formed at elevated temperatures may be irritating to eyes and respiratory tract
- May be harmful if swallowed
- The substance is identified as a hazardous chemical according to the criteria of the OSHA Hazard Communication Standard (29 CFR 1910.1200)

**Principal Routes of Exposure**

- Skin contact
- Eye contact
- Inhalation

## 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %
Alkylamino Alcohol	Proprietary	>99

## 4. FIRST AID MEASURES

**Ingestion**

- Do not induce vomiting
- If victim is conscious
- Rinse mouth
- Never give anything by mouth to an unconscious person
- Seek immediate medical attention/advice

**51205 - Synergex****Skin Contact**

- Wash off immediately with plenty of water for at least 30 minutes
- Remove and wash contaminated clothing before re-use
- Seek immediate medical attention/advice

**Eye Contact**

- Rinse immediately with plenty of water, also under the eyelids, for at least 30 minutes
- Seek immediate medical attention/advice

**Inhalation**

- Move to fresh air
- If not breathing, give artificial respiration
- If breathing is difficult, give oxygen
- Obtain medical attention

**Protection of First-aiders**

- Use personal protective equipment
- Avoid contact with skin, eyes and clothing

**5. FIRE-FIGHTING MEASURES****Suitable Extinguishing Media**

- Alcohol-resistant foam
- water spray
- carbon dioxide (CO<sub>2</sub>)
- dry chemical

**Specific methods**

- In case of fire, stop leak if safe to do so
- Evacuate area and fight fire from a safe distance
- Keep product and empty container away from heat and sources of ignition
- Do not allow run-off from fire fighting to enter drains or water courses

**Special protective equipment for fire-fighters**

- Firefighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent)
- Wash/Decontaminate removed clothing before reuse

**Specific hazards**

- Heating or fire can release toxic gas
- Carbon oxides
- Nitrogen oxides (NO<sub>x</sub>)
- traces of
- hydrogen cyanide (hydrocyanic acid)

**6. ACCIDENTAL RELEASE MEASURES****Personal Precautions**

- Wear protective gloves/clothing and eye/face protection
- Avoid contact with skin, eyes and clothing
- Ensure adequate ventilation
- Keep people away from and upwind of spill/leak
- Evacuate personnel to safe areas

**Environmental Precautions**

- Prevent product from entering drains
- Do not flush into surface water or sanitary sewer system
- Should not be released into the environment

## 51205 - Synergex

**Methods for Clean-up**

- Large spills should be collected mechanically (remove by pumping) for disposal
- Prevent product from entering drains
- Take precautionary measures against static discharges
- Absorb spill with inert material (e.g. dry sand or earth), then place in a chemical waste container
- Keep in suitable and closed containers for disposal

**7. HANDLING AND STORAGE****Storage****Technical measures/Precautions**

- In accordance with local and national regulations
- Keep away from open flames, hot surfaces and sources of ignition
- Keep containers tightly closed in a dry, cool and well-ventilated place

**Incompatible products**

- Strong acids and oxidizing agents
- Peroxides
- Per chlorates
- Nitrous acid and other nitrosating agents

**Handling****Technical measures/Precautions**

- In accordance with local and national regulations
- Ensure adequate ventilation

**Safe handling advice**

- Avoid breathing vapors or mists
- Use only in area provided with appropriate exhaust ventilation
- Wear personal protective equipment
- Avoid contact with skin, eyes and clothing
- Remove and wash contaminated clothing before re-use
- Use only in an area equipped with a safety shower
- Do not use sodium nitrite or other nitrosating agents in product
- Keep container tightly closed
- Empty containers retain product residue and may be hazardous
- Wash thoroughly after handling

**8. EXPOSURE CONTROLS / PERSONAL PROTECTION**

Chemical Name	ACGIH TLV	OSHA PEL
Alkylamino Alcohol	Not listed	None Established

**Respiratory Protection**

- In accordance with local and national regulations
- In case of insufficient ventilation, wear suitable respiratory equipment
- a respirator with filter for organic vapor
- In case of higher concentration
- self-contained breathing apparatus

**Engineering measures**

- Local exhaust

**Personal Protective Equipment****Eye Protection**

- Face-shield
- Chemical resistant goggles must be worn
- Ensure that eyewash stations and safety showers are close to the workstation location

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**Hand protection**

- Solvent-resistant gloves
- Request information on glove permeation properties from the glove supplier

**Skin Protection**

- Solvent-resistant apron and boots
- Wash contaminated clothing before re-use
- Choose body protection according to the amount and concentration of the dangerous substance at the work place

## 9. PHYSICAL AND CHEMICAL PROPERTIES

**General Information**

<b>Physical State</b>	Liquid
<b>Color</b>	Colorless to light yellow
<b>Odor</b>	Slight

**Important Health Safety and Environmental Information**

<b>Boiling Point/Range</b>	199°C 390°F
<b>Flash Point</b>	96°C 205°F
<b>Method</b>	Tag closed cup
<b>Viscosity</b>	No information available
<b>Vapor Pressure</b>	< 0.13 mbar @ 20 °C
<b>Vapor Density</b>	3.6 kg/m <sup>3</sup>
<b>Partition Coefficient (n-octanol/water)</b>	log Pow 0.33
<b>pH</b>	pKa 10
<b>Water solubility</b>	Completely soluble
<b>Oxidizing Properties</b>	Not applicable
<b>Evaporation Rate</b>	No data available
<b>Melting Point/Range</b>	-18°C 0°F
<b>Density</b>	0.89 g/mL @ 20 °C
<b>Flammability</b>	The product is not flammable
<b>Autoignition Temperature</b>	340°C 644°F

## 10. STABILITY AND REACTIVITY

**Stability**

- Stable under normal conditions
- Stable under recommended storage conditions

**Conditions to Avoid**

- Keep away from open flames, hot surfaces and sources of ignition
- Reacts violently with nitrates and nitrites
- Reacts violently with peroxides
- Per chlorates
- Strong acids and oxidizing agents
- Do not use sodium nitrite or other nitro sating agents in product
- nitrosamine

**Hazardous Decomposition Products**

- Thermal decomposition can lead to release of irritating gases and vapours
- nitrogen oxides (NOx)
- Carbon oxides
- Ammonia

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**Hazardous Polymerization**

Hazardous polymerization does not occur.

**11. TOXICOLOGICAL INFORMATION****Eye Contact**

Corrosive, Severe eye irritation, Causes eye burns

**Skin Contact**

Corrosive, Severe skin irritation, Causes skin burns

**Inhalation**

At atmospheric temperature, this product has only a minimal risk of inhalation due to its low vapor pressure. Move to fresh air in case of accidental inhalation of fumes from overheating or combustion.

**Ingestion**

May be harmful if swallowed. Can burn mouth, throat, and stomach.

**Chronic Effects**

None known.

**Carcinogenicity**

The table below indicates whether each agency has listed any ingredient as a carcinogen.

<b>Chemical Name</b>	<b>IARC</b>	<b>ACGIH</b>	<b>OSHA</b>	<b>NTP</b>
Alkylamino Alcohol	Not Listed	Not Listed	Not Listed	Not Listed

**Product Information**