

NuDef

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations
Issue date: 1/23/2024 Version: 1.0

SECTION 1: Identification

1.1. Identification

Product form : Mixture
Trade name : NuDef

1.2. Recommended use and restrictions on use

Recommended use : Additive for Diesel Exhaust Fluid
Restrictions on use : All other uses not recommended above

1.3. Supplier

NuDef
26770 Oak Ave
Canyon Country, California 91351
United States
T 855-300-0031 USA
sds@nudef.com

1.4. Emergency telephone number

Emergency number : For Hazardous Materials or Dangerous Goods Incident Spill, Leak, Fire, Exposure, or Accident
Call CHEMTREC Day or Night: 1-800-424-9300 (Toll Free, USA) / 703-527-3887 (Virginia, USA)
CCN 1016079

SECTION 2: Hazard(s) identification

2.1. Classification of the substance or mixture

GHS US classification

Flammable liquids Category 4	Combustible liquid
Acute toxicity (oral) Category 4	Harmful if swallowed
Acute toxicity (inhalation:dust,mist) Category 3	Toxic if inhaled
Skin corrosion/irritation Category 2	Causes skin irritation
Serious eye damage/eye irritation Category 2A	Causes serious eye irritation
Full text of H statements : see section 16	

2.2. GHS Label elements, including precautionary statements

GHS US labeling

Hazard pictograms (GHS US) :



Signal word (GHS US) :

Danger

Hazard statements (GHS US) :

Combustible liquid
Harmful if swallowed
Causes skin irritation
Causes serious eye irritation
Toxic if inhaled

Precautionary statements (GHS US) :

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
Avoid breathing mist, spray, vapors, gas.
Wash hands, forearms and face thoroughly after handling.

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Do not eat, drink or smoke when using this product.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/protective clothing/eye protection/face protection.
If swallowed: Call a POISON CENTER if you feel unwell.
Rinse mouth.
If on skin: Wash with plenty of water.
If skin irritation occurs: Get medical advice/attention.
Take off contaminated clothing and wash it before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice/attention.
If inhaled: Remove person to fresh air and keep comfortable for breathing.
Call a POISON CENTER.
In case of fire: Use media other than water to extinguish.
Store in a well-ventilated place. Keep container tightly closed.
Keep cool.
Store locked up.
Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation.

2.3. Other hazards which do not result in classification

No additional information available

2.4. Unknown acute toxicity (GHS US)

70% of the mixture consists of ingredient(s) of unknown acute toxicity (Inhalation (Dust/Mist))

SECTION 3: Composition/Information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Product identifier	%	GHS US classification
Ethylene Glycol	CAS-No.: 107-21-1	60 – 80	Acute Tox. 4 (Oral), H302 Eye Irrit. 2B, H320 STOT RE 2, H373
2-Butoxyethanol	CAS-No.: 111-76-2	20 – 40	Flam. Liq. 4, H227 Acute Tox. 4 (Oral), H302 Acute Tox. 4 (Dermal), H312 Acute Tox. 3 (Inhalation), H331 Skin Irrit. 2, H315 Eye Irrit. 2, H319

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

First-aid measures general

: First aider: Pay attention to self-protection. Never give anything by mouth to an unconscious person. Give artificial respiration if necessary. Induce artificial respiration with mask fitted with one-way valve or other suitable device but not mouth-to-mouth.

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First-aid measures after inhalation	: If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. Induce artificial respiration with mask fitted with one-way valve or other suitable device; not mouth-to-mouth. Get medical advice/attention.
First-aid measures after skin contact	: Remove affected clothing and wash all exposed skin area with mild soap and water, followed by warm water rinse. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.
First-aid measures after eye contact	: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.
First-aid measures after ingestion	: Rinse mouth and spit the fluids out. Give nothing or a little water to drink. Do NOT induce vomiting. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Immediately call a poison center or doctor/physician.

4.2. Most important symptoms and effects (acute and delayed)

Symptoms/effects after inhalation	: May cause irritation to the respiratory tract, sneezing, coughing, burning sensation of throat with constricting sensation of the larynx and difficulty in breathing.
Symptoms/effects after skin contact	: Irritation (itching, redness, blistering).
Symptoms/effects after eye contact	: Stinging, redness, itching, tears, blurred vision, swelling.
Symptoms/effects after ingestion	: Depression of the central nervous system, headaches, dizziness, drowsiness, loss of coordination. Gastrointestinal disturbances.
Most Important Symptoms/Effects	: Depression of the central nervous system, headaches, dizziness, drowsiness, loss of coordination. Irritation to eyes, skin and respiratory tract.
Chronic symptoms	: Repeated or prolonged exposure to high levels may affect the liver and kidneys.

4.3. Immediate medical attention and special treatment, if necessary

Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable (and unsuitable) extinguishing media

Suitable extinguishing media	: Water spray. Dry powder. Foam. Carbon dioxide.
Unsuitable extinguishing media	: Do not use a heavy water stream.

5.2. Specific hazards arising from the chemical

Fire hazard	: Combustible liquid.
Hazardous decomposition products in case of fire	: Toxic fumes may be released. Carbon dioxide. Carbon monoxide. Irritating aldehydes and ketones.

5.3. Special protective equipment and precautions for fire-fighters

Firefighting instructions	: Fight fire with normal precautions from a reasonable distance. Do not enter fire area without proper protective equipment, including respiratory protection. Evacuate area. Eliminate all ignition sources if safe to do so. Use water spray or fog for cooling exposed containers.
Protection during firefighting	: Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General measures	: Avoid all personal contact including breathing in the mist, spray, vapors, gas. Do not take actions involving personal risks.
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6.1.1. For non-emergency personnel

Protective equipment	: Wear the recommended personal protective equipment.
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Emergency procedures : Evacuate the danger area. If outdoors, move to an area upwind of the danger area. If possible without taking personal risks, remove ignition sources, ventilate area. Avoid contact with skin and eyes. Prevent other non-emergency personnel from entering the danger area.

6.1.2. For emergency responders

Protective equipment : Wear the recommended personal protective equipment. For further information refer to section 8: "Exposure controls/personal protection".

Emergency procedures : Evacuate personnel to a safe area. Ventilate spillage area.

6.2. Environmental precautions

Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

For containment : Absorb spilled material with sand or earth.
Methods for cleaning up : Take up liquid spill into absorbent material. Contaminated absorbent material may pose the same hazard as the spilt product. Decontaminate surfaces and equipment with water and detergent. Dispose of collected material as soon as possible in accordance with applicable local/regional/national/international regulations.

6.4. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection". For further information refer to section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Do not breathe dust/fume/gas/mist/vapors/spray. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Take precautionary measures against static discharge.

Hygiene measures : Do not eat, drink or smoke when using this product. Always wash hands after handling the product.

7.2. Conditions for safe storage, including any incompatibilities

Storage conditions : Keep container tightly closed. Keep cool. Protect from sunlight. Keep only in original container.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

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No additional information available

Ethylene Glycol (107-21-1)

USA - ACGIH - Occupational Exposure Limits

Local name	Ethylene glycol
ACGIH OEL TWA	25 ppm (V - Vapor fraction)
ACGIH OEL STEL	10 mg/m ³ (I - Inhalable particulate matter, H - Aerosol only) 50 ppm (V - Vapor fraction)
Remark (ACGIH)	TLV® Basis: URT irr. Notations: A4 (Not classifiable as a Human Carcinogen)

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Ethylene Glycol (107-21-1)	
Regulatory reference	ACGIH 2024
2-Butoxyethanol (111-76-2)	
USA - ACGIH - Occupational Exposure Limits	
Local name	2-Butoxyethanol (EGBE)
ACGIH OEL TWA	20 ppm
Remark (ACGIH)	TLV® Basis: Eye & URT irr. Notations: A3 (Confirmed Animal Carcinogen with Unknown Relevance to Humans); BEI
Regulatory reference	ACGIH 2024
USA - OSHA - Occupational Exposure Limits	
Local name	2-Butoxyethanol
OSHA PEL TWA	240 mg/m ³ 50 ppm
Regulatory reference (US-OSHA)	OSHA Annotated Table Z-1

8.2. Appropriate engineering controls

Appropriate engineering controls	: Ensure good ventilation of the work station. Use general ventilation, local exhaust ventilation or process enclosure to keep the airborne concentrations below the permissible exposure limits.
Environmental exposure controls	: Avoid release to the environment. Take measures to reduce or limit air emissions and releases to soil and the aquatic environment.

8.3. Individual protection measures/Personal protective equipment

Personal protective equipment:

Personal protective equipment should be chosen according to national standards and in discussion with the supplier of the protective equipment.

Hand protection:				
Wear protective gloves				
Type	Material	Permeation	Thickness (mm)	Penetration
Disposable gloves	Butyl rubber	6 (> 480 minutes)	0.5	
Disposable gloves	Fluorocarbon rubber	6 (> 480 minutes)	0.4	
Eye protection:				
Chemical goggles or face shield				
Skin and body protection:				
Body protection should be chosen depending on activity and possible exposure. Long sleeved protective clothing				
Respiratory protection:				
Use NIOSH approved respirator if ventilation is inadequate. SCBA for emergency responders. Must be used in accordance with an OSHA compliant respiratory protection program.				

Personal protective equipment symbol(s):



SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Liquid.
Appearance	: Liquid.
Color	: Colorless
Odor	: No data available
Odor threshold	: No data available
pH	: 5
Melting point	: Not applicable
Freezing point	: No data available
Boiling point	: No data available
Flash point	: 181 °F / 82.8 °C
Relative evaporation rate (butyl acetate=1)	: No data available
Flammability (solid, gas)	: Not applicable.
Vapor pressure	: No data available
Relative vapor density at 20°C	: No data available
Relative density	: No data available
Solubility	: Miscible with water.
Partition coefficient n-octanol/water (Log Pow)	: No data available
Auto-ignition temperature	: No data available
Decomposition temperature	: No data available
Viscosity, kinematic	: No data available
Viscosity, dynamic	: No data available
Explosion limits	: No data available
Explosive properties	: No data available
Oxidizing properties	: No data available

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

The product is non-reactive under normal conditions of use, storage and transport.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

No dangerous reactions known under normal conditions of use.

10.4. Conditions to avoid

Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Incompatible materials.

10.5. Incompatible materials

Acids. Amines. Strong bases. Oxidizing agents.

10.6. Hazardous decomposition products

Under normal conditions of storage and use, hazardous decomposition products should not be produced. Thermal decomposition generates : Carbon dioxide. Carbon monoxide. Irritating aldehydes and ketones.

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SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral) : Harmful if swallowed.
Acute toxicity (dermal) : Not classified.
Acute toxicity (inhalation) : Inhalation:dust,mist: Toxic if inhaled.

NuDef	
ATE US (oral)	620.284 mg/kg body weight
ATE US (dust, mist)	0.5 mg/l/4h
Unknown acute toxicity (GHS US)	70% of the mixture consists of ingredient(s) of unknown acute toxicity (Inhalation (Dust/Mist))

Ethylene Glycol	
LD50 oral rat	4700 mg/kg body weight
LD50 dermal rat	9530 mg/kg body weight

2-Butoxyethanol	
LD50 oral	1414 mg/kg body weight
LD50 dermal rat	1250 mg/kg body weight
LC50 Inhalation - Rat [ppm]	550 ppm/4h

Skin corrosion/irritation : Causes skin irritation.
pH: 5

Ethylene Glycol	
Skin corrosion/irritation, rabbit	Not irritating to skin

2-Butoxyethanol	
Skin corrosion/irritation, rabbit	Mildly irritating

Serious eye damage/irritation : Causes serious eye irritation.
pH: 5

Ethylene Glycol	
Serious eye damage/irritation, rabbit	<40% Irritating to eyes (Fully reversible effects within 7 days of observation)

2-Butoxyethanol	
Serious eye damage/irritation, rabbit	Moderately irritating.

Respiratory or skin sensitization : Not classified

Ethylene Glycol	
Guinea pig maximization test	Not sensitive
Skin sensitization, human	Not sensitive

2-Butoxyethanol	
Guinea pig maximization test	Not sensitive

Germ cell mutagenicity : Not classified

Ethylene Glycol	
Additional information	Dominant lethal test, Rat- Negative

Carcinogenicity : Not classified

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2-Butoxyethanol	
IARC group	3 - Not classifiable
Reproductive toxicity	: Not classified
STOT-single exposure	: Not classified
STOT-repeated exposure	: Not classified.
Ethylene Glycol	
STOT-repeated exposure	May cause damage to organs through prolonged or repeated exposure.
2-Butoxyethanol	
NOAEL (dermal,rat/rabbit,90 days)	> 150 mg/kg body weight
Aspiration hazard	: Not classified
Viscosity, kinematic	: No data available
Symptoms/effects after inhalation	: May cause irritation to the respiratory tract, sneezing, coughing, burning sensation of throat with constricting sensation of the larynx and difficulty in breathing.
Symptoms/effects after skin contact	: Irritation (itching, redness, blistering).
Symptoms/effects after eye contact	: Stinging, redness, itching, tears, blurred vision, swelling.
Symptoms/effects after ingestion	: Depression of the central nervous system, headaches, dizziness, drowsiness, loss of coordination. Gastrointestinal disturbances.
Most Important Symptoms/Effects	: Depression of the central nervous system, headaches, dizziness, drowsiness, loss of coordination. Irritation to eyes, skin and respiratory tract.
Chronic symptoms	: Repeated or prolonged exposure to high levels may affect the liver and kidneys.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.

Ethylene Glycol	
LC50 - Fish [1]	> 72860 mg/l
EC50 - Crustacea [1]	> 100 mg/l
NOEC (chronic)	≥ 1000 mg/l
NOEC chronic fish	32000 mg/l (7 days)
NOEC chronic crustacea	24000 ml/l (48h)
2-Butoxyethanol	
LC50 - Fish [1]	1474 mg/l
EC50 - Crustacea [1]	≈ 1800 mg/l
NOEC (chronic)	100 mg/l
NOEC chronic fish	≥ 100 mg/l

12.2. Persistence and degradability

No additional information available

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12.3. Bioaccumulative potential

Ethylene Glycol

Bioaccumulative potential	Does not bioaccumulate.
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12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

No additional information available




SECTION 13: Disposal considerations

13.1. Disposal methods

Regional waste regulation	: Disposal must be done according to official regulations.
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.
Product/Packaging disposal recommendations	: Dispose of this material and its container at hazardous or special waste collection point. Refer to all applicable national, international and local regulations or provisions.
Ecological information	: Avoid release to the environment.

SECTION 14: Transport information

In accordance with DOT / IMDG / IATA

DOT	IMDG	IATA
14.1. UN number		
2810	2810	2810
14.2. Proper Shipping Name		
Toxic, liquids, organic, n.o.s. (2-Butoxyethanol)	TOXIC LIQUID, ORGANIC, N.O.S. (2-Butoxyethanol)	Toxic liquid, organic, n.o.s. (2-Butoxyethanol)
14.3. Transport hazard class(es)		
6.1	6.1	6.1
		
14.4. Packing group		
III	III	III
14.5. Environmental hazards		
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No
No supplementary information available		

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14.6. Special precautions for user

DOT	
UN-No.(DOT)	: UN2810
DOT Packaging Exceptions (49 CFR 173.xxx)	: 153
DOT Packaging Non Bulk (49 CFR 173.xxx)	: 203
DOT Packaging Bulk (49 CFR 173.xxx)	: 241
DOT Quantity Limitations Passenger aircraft/rail (49 CFR 173.27)	: 60 L
DOT Quantity Limitations Cargo aircraft only (49 CFR 175.75)	: 220 L
DOT Vessel Stowage Location	: A - The material may be stowed "on deck" or "under deck" on a cargo vessel and on a passenger vessel.
DOT Vessel Stowage Other	: 40 - Stow "clear of living quarters"

IMDG

Special provision (IMDG)	: 223, 274
Limited quantities (IMDG)	: 5 L
Excepted quantities (IMDG)	: E1
Packing instructions (IMDG)	: P001, LP01
IBC packing instructions (IMDG)	: IBC03
Tank instructions (IMDG)	: T7
Tank special provisions (IMDG)	: TP1, TP28
EmS-No. (Fire)	: F-A - FIRE SCHEDULE Alfa - GENERAL FIRE SCHEDULE
EmS-No. (Spillage)	: S-A - SPILLAGE SCHEDULE Alfa - TOXIC SUBSTANCES
Stowage category (IMDG)	: A
Stowage and handling (IMDG)	: SW2
Properties and observations (IMDG)	: Toxic if swallowed, by skin contact or by inhalation.

IATA

PCA Excepted quantities (IATA)	: E1
PCA Limited quantities (IATA)	: Y642
PCA limited quantity max net quantity (IATA)	: 2L
PCA packing instructions (IATA)	: 655
PCA max net quantity (IATA)	: 60L
CAO packing instructions (IATA)	: 663
CAO max net quantity (IATA)	: 220L
ERG code (IATA)	: 6L

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

SECTION 15: Regulatory information

15.1. US Federal regulations

All components of this product are present and listed as Active on the United States Environmental Protection Agency Toxic Substances Control Act (TSCA) inventory

Chemical(s) subject to the reporting requirements of Section 313 or Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986 and 40 CFR Part 372.

Ethylene Glycol	CAS-No. 107-21-1	60 – 80%
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Ethylene Glycol (107-21-1)

Listed on EPA Hazardous Air Pollutant (HAPS)

CERCLA RQ	5000 lb
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15.2. International regulations

CANADA

Ethylene Glycol (107-21-1)

Listed on the Canadian DSL (Domestic Substances List)

2-Butoxyethanol (111-76-2)

Listed on the Canadian DSL (Domestic Substances List)

EU-Regulations

No additional information available

National regulations


Ethylene Glycol (107-21-1)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

2-Butoxyethanol (111-76-2)

Listed on INSQ (Mexican National Inventory of Chemical Substances)

15.3. US State regulations

 **WARNING:** This product can expose you to Ethylene glycol (ingested), which is known to the State of California to cause birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

SECTION 16: Other information

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Full text of H-phrases

H227	Combustible liquid
H302	Harmful if swallowed
H312	Harmful in contact with skin
H315	Causes skin irritation
H319	Causes serious eye irritation
H320	Causes eye irritation
H331	Toxic if inhaled
H373	May cause damage to organs through prolonged or repeated exposure

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.