Material Safety Data Sheet
Ethylene glycol

Version 1.0 Revision Date: 07/10/2014

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : Ethylene glycol
Product Use Description : Industrial chemical

Manufacturer or supplier's details

Company : Nexeo Solutions LLC
Address 3 Waterway Square Place Suite 1000
Woodlands, Tx. 77380

Emergency telephone number:
Health North America: 1-855-NEXEO4U (1-855-639-3642)
Health International: 1-855-NEXEO4U (1-855-639-3642)
Transport North America: CHEMTREC 800.424.9300

Additional Information: : Responsible Party: Product Safety Group
E-Mail: msds@nexeosolutions.com
MSDS Requests: 1-855-429-2661
MSDS Requests Fax: 1-281-500-2370
Website: www.nexeosolutions.com

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Acute toxicity (Oral) : Category 4

Specific target organ toxicity - repeated exposure (Oral) : Category 2 (Kidney)

GHS Label element

Hazard pictograms :

Signal word : Warning

Hazard statements : H302 Harmful if swallowed.
H373 May cause damage to organs (Kidney) through prolonged or repeated exposure if swallowed.

Precautionary statements : **Prevention:**
P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P264 Wash skin thoroughly after handling.
P270 Do not eat, drink or smoke when using this product.
Response:
P301 + P312 + P330 IF SWALLOWED: Call a POISON CENTER or doctor/ physician if you feel unwell. Rinse mouth.
P314 Get medical advice/ attention if you feel unwell.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Potential Health Effects

Carcinogenicity:

IARC No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

ACGIH No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

OSHA No component 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 component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Emergency Overview

Appearance	liquid
Colour	Various
Odour	mild, sweet
	none
Hazard Summary	No information available.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components

CAS-No.	Chemical Name	Concentration (%)
107-21-1	Ethylene glycol	90 - 100

SECTION 4. FIRST AID MEASURES

General advice	:	Move out of dangerous area. Show this safety data sheet to the doctor in attendance. Do not leave the victim unattended.
If inhaled	:	If unconscious place in recovery position and seek medical advice. If symptoms persist, call a physician.
In case of skin contact	:	If skin irritation persists, call a physician. If on skin, rinse well with water. If on clothes, remove clothes.
In case of eye contact	:	Flush eyes with water as a precaution. Remove contact lenses. Protect unharmed eye. Keep eye wide open while rinsing. If eye irritation persists, consult a specialist.
If swallowed	:	Induce vomiting immediately and call a physician. Keep respiratory tract clear. Do not give milk or alcoholic beverages. Never give anything by mouth to an unconscious person. If symptoms persist, call a physician. Take victim immediately to hospital.

SECTION 5. FIREFIGHTING MEASURES

Unsuitable extinguishing media	:	High volume water jet
Hazardous combustion products	:	No hazardous combustion products are known
Specific extinguishing methods	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Further information	:	Standard procedure for chemical fires.
Special protective equipment for firefighters	:	Wear self-contained breathing apparatus for fire-fighting if necessary.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Use personal protective equipment.
Environmental precautions	:	Prevent product from entering drains. Prevent further leakage or spillage if safe to do so. If the product contaminates rivers and lakes or drains inform respective authorities.
Methods and materials for containment and cleaning up	:	Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Keep in suitable, closed containers for disposal.

SECTION 7. HANDLING AND STORAGE

Advice on safe handling	:	Do not breathe vapours/dust. Avoid contact with skin and eyes. For personal protection see section 8. Smoking, eating and drinking should be prohibited in the application area. Dispose of rinse water in accordance with local and national regulations.
Conditions for safe storage	:	Keep container tightly closed in a dry and well-ventilated place. Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

CAS-No.	Components	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
107-21-1	Ethylene glycol	TLV-C	50 ppm 125 mg/m3	OSHA P0
		C	100 mg/m3	ACGIH
		C (Aerosol only)	100 mg/m3	ACGIH

Personal protective equipment

Respiratory protection	:	No personal respiratory protective equipment normally required.
Hand protection Remarks	:	The suitability for a specific workplace should be discussed with the producers of the protective gloves.
Eye protection	:	Eye wash bottle with pure water Tightly fitting safety goggles
Skin and body protection	:	impervious clothing Choose body protection according to the amount and concentration of the dangerous substance at the work place.
Hygiene measures	:	When using do not eat or drink. When using do not smoke. Wash hands before breaks and at the end of workday.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	liquid
Colour	:	Various
Odour	:	mild, sweet none
Odour Threshold	:	No data available
pH	:	9 @ 20 °C (68 °F)
Freezing Point (Melting point/freezing point)	:	-13 °C (9 °F)
Boiling Point (Boiling point/boiling range)	:	197 °C (387 °F)
Flash point	:	>= 111 °C (>= 232 °F)
Evaporation rate	:	< 1 n-Butyl Acetate
Flammability (solid, gas)	:	No data available
Burning rate	:	No data available

Upper explosion limit	:	15.3 %(V)
Lower explosion limit	:	3.2 %(V)
Vapour pressure	:	0.9 - 1.6 mmHg @ 20 °C (68 °F)
Relative vapour density	:	2.1
Relative density	:	1.115 @ 20 °C (68 °F)
Density	:	1.11 g/cm3 @ 20 °C (68 °F)
Bulk density	:	No data available
Solubility(ies)		
Water solubility	:	completely soluble
Solubility in other solvents	:	No data available
Partition coefficient: n-octanol/water	:	log Pow: -1.36
Auto-ignition temperature	:	398 °C
Thermal decomposition	:	No data available
Viscosity		
Viscosity, dynamic	:	26 mPa.s @ 15 °C (59 °F)

SECTION 10. STABILITY AND REACTIVITY

Reactivity	:	No dangerous reaction known under conditions of normal use.
Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No hazards to be specially mentioned.
Conditions to avoid	:	No data available
Incompatible materials	:	Avoid contact with: Aldehydes aluminum

Strong acids
Strong bases
Strong oxidizing agents

SECTION 11. TOXICOLOGICAL INFORMATION

Acute toxicity

Components:

107-21-1:

Acute oral toxicity : 2,000 mg/kg
Assessment: The component/mixture is moderately toxic after single ingestion.

Acute inhalation toxicity : LC50 (rat, male and female): > 2.5 mg/l
Exposure time: 6 h
Test atmosphere: dust/mist
GLP: yes

Acute dermal toxicity : LD50 (mouse, male and female): > 3,500 mg/kg
Remarks: Non-toxic

Skin corrosion/irritation

Components:

107-21-1:

Species: rabbit
Exposure time: 20 h
Classification: Not irritating to skin
Method: In vivo
Result: Not irritating to skin

Serious eye damage/eye irritation

Components:

107-21-1:

Species: rabbit
Result: Not irritating to eyes
Exposure time: 24 h
Classification: Not irritating to eyes
Method: In vivo

Respiratory or skin sensitisation

Components:

107-21-1:
Test Type: Maximisation Test (GPMT)
Species: guinea pig
Assessment: Does not cause skin sensitisation.
Result: Does not cause skin sensitisation.

Germ cell mutagenicity

Components:

107-21-1:

Genotoxicity in vitro : Test Type: Ames test
Metabolic activation: with and without metabolic activation
Method: OECD Test Guideline 471
Result: negative
GLP: yes

: Test Type: Chromosome aberration test in vitro
Test species: Chinese hamster ovary (CHO)
Metabolic activation: with and without metabolic activation
Result: negative
GLP: yes

: Test Type: Mammalian cell gene mutation assay
Test species: Mouse lymphoma cells
Metabolic activation: with and without metabolic activation
Result: negative

Genotoxicity in vivo : Test Type: Dominant lethal assay
Test species: rat (male and female)
Application Route: Oral
Exposure time: daily
Dose: 0, 40, 200, 1000 mg/kg
Result: negative

Germ cell mutagenicity-Assessment : Did not show mutagenic effects in animal experiments.

Carcinogenicity

Components:

107-21-1:
Species: mouse, (male and female)
Application Route: Oral
Exposure time: 24 mths
Dose: 0, 40, 200, 1000 mg/kg
Frequency of Treatment: daily
LOAEL: 1,000 mg/kg

Result: Ambiguous

Species: rat, (male and female)
Application Route: Oral
Exposure time: 24 mths
Dose: 0, 40, 200, 1000 mg/kg
Frequency of Treatment: daily
NOAEL: 1,000 mg/kg

Result: did not display carcinogenic properties

Carcinogenicity - Assessment : Not classifiable as a human carcinogen.

Reproductive toxicity

Components:

107-21-1:

Effects on fertility : Test Type: Fertility
Species: mouse, male and female
Application Route: Oral
Dose: 0, 500, 1000, 2000 mg/kg/day
General Toxicity - Parent: NOAEL: 1,000 mg/kg body weight
General Toxicity F1: NOAEL: 1,000 mg/kg body weight
Symptoms: Reduced fertility of F1 generation.
Result: Embryotoxic effects and adverse effects on the offspring were detected.
GLP: yes

Test Type: Three-generation study
Species: rat, male and female
Application Route: Oral
Dose: 0, 40, 200, 1000 mg/kg
General Toxicity - Parent: NOAEL: > 1,000 mg/kg body weight
General Toxicity F1: NOAEL: > 1,000 mg/kg body weight
Result: No reproductive effects.

Effects on foetal development : Species: rabbit
Application Route: Oral
Dose: 0, 100, 500, 1000, 2000 mg/kg
Duration of Single Treatment: 10 d
General Toxicity Maternal: NOAEL: 1,000 mg/kg body weight
Teratogenicity: NOAEL: 2,000 mg/kg body weight
Developmental Toxicity: NOAEL: 2,000 mg/kg body

weight
Result: No teratogenic effects.
GLP: yes

Species: rat
Application Route: inhalation (dust/mist/fume)
Dose: 0, 60, 400, 1000 ppm
Duration of Single Treatment: 10 d
Frequency of Treatment: 6 hr/day
General Toxicity Maternal: NOAEC: 400 ppm
Teratogenicity: NOAEC: 1,000 ppm
Developmental Toxicity: NOAEC: 60 ppm
Symptoms: Specific developmental abnormalities.
Result: No teratogenic effects.

Species: mouse
Application Route: inhalation (dust/mist/fume)
Dose: 0, 60, 400, 1000 ppm
Duration of Single Treatment: 10 d
Frequency of Treatment: 6 hr/day
General Toxicity Maternal: NOAEC: 60 ppm
Teratogenicity: NOAEC: 60 ppm
Developmental Toxicity: NOAEC: 60 ppm
Symptoms: Maternal toxicity, Malformations were observed.
Result: Teratogenic effects.

Reproductive toxicity - Assessment : Experiments have shown reproductive toxicity effects on laboratory animals.
Teratogenic effects indicated in some animal experiments

STOT - single exposure

Product:

No data available

Components:

No data available

STOT - repeated exposure

Product:

No data available

Components:

No data available

Repeated dose toxicity

Components:

107-21-1:
Species: rat, male
NOAEL: 150 mg/kg
Application Route: Oral
Exposure time: 12 mths
Number of exposures: daily
Dose: 0, 50, 150, 300, 400 mg/kg bw
Method: OECD Test Guideline 452
Target Organs: Kidney
Symptoms: Kidney disorders

Species: dog, male
NOAEL: 2
Application Route: Dermal
Exposure time: 4 wks
Number of exposures: daily
Dose: 0, 2, 4 ml/kg
Method: OECD Test Guideline 410
GLP: yes
Target Organs: Kidney
Symptoms: Kidney disorders

Repeated dose toxicity - Assessment : Harmful if swallowed.

Aspiration toxicity

Product:
No aspiration toxicity classification

Further information

Product:
Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

Components:

107-21-1:

Toxicity to fish : LC50 (Pimephales promelas (fathead minnow)): 72,860 mg/l

Exposure time: 96 h
Test Type: static test

Toxicity to daphnia and other aquatic invertebrates : LC50 (Daphnia magna (Water flea)): > 100 mg/l
Exposure time: 48 h
Test Type: static test
Method: OECD Test Guideline 202
GLP: yes

Toxicity to algae : (Pseudokirchneriella subcapitata (Selenastrum capricornutum)): 6,500 - 13,000 mg/l
End point: Growth rate
Exposure time: 96 h
Test Type: static test

Toxicity to bacteria : Toxicity threshold (Pseudomonas putida): > 10,000 mg/l
Exposure time: 16 h
Test Type: Static
Method: DIN 38412

Persistence and degradability

Components:

107-21-1:

Biodegradability : aerobic
Inoculum: Activated sludge, domestic, adaption not specified
Biodegradation: 90 - 100 %
Exposure time: 10 d
GLP: yes
Remarks: Readily biodegradable

Bioaccumulative potential

Components:

107-21-1:

Bioaccumulation : Species: Fish
Bioconcentration factor (BCF): 0.60
Exposure time: 61 d

Partition coefficient: n-octanol/water : log Pow: -1.36

Mobility in soil

No data available

Other adverse effects

No data available

Product:

Regulation	40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks	This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of in accordance with all applicable local, state and federal regulations.
For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact NEXEO's Environmental Services Group at 800-637-7922.

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

IATA (International Air Transport Association): Not regulated as a dangerous good

IMDG-Code: Not regulated as a dangerous good

DOT (Department of Transportation): Not regulated as a dangerous good

SECTION 15. REGULATORY INFORMATION

OSHA Hazards : Toxic by inhalation., Carcinogen, Teratogen

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Ethylene glycol	107-21-1	5000	5000

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Acute Health Hazard
Chronic Health Hazard

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

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

107-21-1 Ethylene glycol 100 %

Clean Air Act

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

107-21-1 Ethylene glycol 100 %

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCMI Intermediate or Final VOC's (40 CFR 60.489):

107-21-1 Ethylene glycol 100 %

Clean Water Act

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. Clean-Water Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

US State Regulations

Massachusetts Right To Know

107-21-1 Ethylene glycol 90 - 100 %

Pennsylvania Right To Know

107-21-1 Ethylene glycol 90 - 100 %

New Jersey Right To Know

107-21-1 Ethylene glycol 90 - 100 %

California Prop 65 This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

The components of this product are reported in the following inventories:

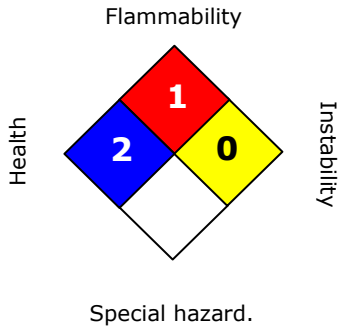
1907/2006 (EU)	:	n (Negative listing) (Not in compliance with the inventory)
Switzerland. New notified substances and declared preparations	:	y (positive listing) (The formulation contains substances listed on the Swiss Inventory)
United States TSCA Inventory	:	y (positive listing) (On TSCA Invento-ry)
Canadian Domestic Substances List (DSL)	:	y (positive listing) (All components of this product are on the Canadian DSL.)
Australia Inventory of Chemical Substances (AICS)	:	y (positive listing) (On the inventory, or in compliance with the inventory)
New Zealand. Inventory of Chemical Substances	:	y (positive listing) (On the inventory, or in compliance with the inventory)
Japan. ENCS - Existing and New Chemical Substances Inventory	:	y (positive listing) (On the inventory, or in compliance with the inventory)
Japan. ISHL - Inventory of Chemical Substances (METI)	:	y (positive listing) (On the inventory, or in compliance with the inventory)
Korea. Korean Existing Chemicals Inventory (KECI)	:	y (positive listing) (On the inventory, or in compliance with the inventory)

Philippines Inventory of Chemicals and Chemical Substances (PICCS)	:	y (positive listing) (On the inventory, or in compliance with the inventory)
China. Inventory of Existing Chemical Substances in China (IECSC)	:	y (positive listing) (On the inventory, or in compliance with the inventory)

SECTION 16. OTHER INFORMATION

Further information

NFPA:



HMIS III:

HEALTH	2*
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 =Extreme, * = Chronic

The information accumulated is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This MSDS has been prepared by NEXEO™ Solutions EHS Product Safety Department (1-855-429-2661) MSDS@nexeosolutions.com.

Legecy MSDS: R0000003

Material number:
16062967, 16062968, 16062969, 16062427, 16056075, 16056074, 16055096, 16051591, 16045661, 16041946, 16041542, 16037771, 16037563, 16034406, 16033659, 16033181, 102641, 16030354, 16026819, 16013884, 16013560, 16012467, 16012189, 16004457, 775747, 768004, 736726, 736570, 729076,

721550, 714457, 714015, 714153, 666370, 611623, 598441, 594558, 86147, 87305, 559851, 554069, 554044, 554070, 554370, 554327, 554244, 554232, 554141, 554097, 554067, 554068, 105297, 103280, 102638, 101896, 88915, 87858, 86506, 86256, 72718, 71481, 70931, 70647, 70642, 70518, 70210, 56154, 55100, 54253, 53829, 508796, 508585, 508339, 508338, 53748, 87014, 69879, 53391, 103693, 85514, 144460, 86148, 54548, 86509, 87309, 502712, 29968, 20006, 20002, 24453, 22235, 20005, 20004, 20003, 506082

Key or legend to abbreviations and acronyms used in the safety data sheet			
ACGIH	American Conference of Government Industrial Hygienists	LD50	Lethal Dose 50%
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philipines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Compositon, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50		Lethal Concentration 50%	