I. PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME: NOV Glycol MC
PRODUCT USE: Additive in drilling fluids.
SYNONYMS: Glycols, polyethylene, monobutyl ether
Polyoxyethylene monobutyl ether

Supplier:

NOV FluidControl
4310 N. Sam Houston Parkway E
Houston, TX 77032
Office: (713) 482-0500
Fax: (713) 482-0695
Company website: www.nov.com

Emergency Telephone Number:
CHEMTREC: 1-800-424-9300 or International +1-703-527-3887

II. COMPOSITION / INGREDIENTS INFORMATION

Chemical Name: Poly(oxy-1,2-ethanediyl),.alpha.-butyl-.
.omega.-hydroxy-
CAS no.  9004-77-7
%  > 99
EINECS/NLP  500-012-0
Classification  Xi, R36

See section 16 for the full text of the R phrases
Occupational exposure limits, if available are listed in section VIII.

III. HAZARDS IDENTIFICATION

The substance is not classified in the Annex I to Directive 67/548/EEC as such but some constituents are.

Symbols: Xi; R36

Classification: Xi Irritating to eyes.
Human health hazards: Irritating to eyes.
Physical/chemical hazards: Not classified as flammable, but will burn.
Environmental hazards: Not classified as dangerous.

Effects and symptoms

Eyes: Liquid will cause conjunctival irritation and corneal damage.
Skin: Repeated exposure may cause skin dryness or cracking and irritation.
Inhalation: Exposure to vapour at high concentrations may have following effects: irritation of nose, throat and respiratory tract.
Ingestion: Swallowing may have the following effects: nausea/vomiting, central nervous system depression.
HMIS Hazard Ratings: Health 2, Flammability 1, Chemical Reactivity 0
NOV Glycol MC  
Material Safety Data Sheet

IV. FIRST AID MEASURES

Emergency Overview: In general no treatment is necessary, however, obtain medical advice.

Eyes: Immediately flush eyes with large amounts of water for at least 15 minutes while holding eyelids open. Transport to the nearest medical facility for additional treatment.

Skin: Immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before re-use. Clean shoes thoroughly before re-use. Get medical attention if irritation develops.

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention if symptoms appear.

Ingestion: Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Aspiration if this material into lungs may cause chemical pneumonia and can be fatal. Aspiration into the lungs can occur while vomiting after ingestion of this material. Get medical attention.

V. FIRE & EXPLOSION HAZARD DATA

Clear fire area of all non-emergency personnel.

Flash point: 123 °C (ASTM D-93, Setaflash CC).

Explosion / Flammability limits in air: 0.8 – 3.8% v (Major homologue).


Extinguishing Media: Alcohol-resistant foam, water spray or fog. Dry chemical powder, carbon dioxide, sand or earth may be used for small fires only. Do not discharge extinguishing waters into the aquatic environment.

Hazardous decomposition products: These products are carbon monoxide and carbon dioxide.

Unusual fire and explosion hazards: This material is not explosive as defined by established regulatory criteria.

Special fire-fighting procedures: None identified.

Protective Equipment for Fire-fighters: Wear full protective clothing and self-contained breathing apparatus (SCBA).

VI. ACCIDENTAL RELEASE MEASURES

Observe all relevant local and international regulations.

Protective measures: Avoid contact with spilled or released material. Immediately remove all contaminated clothing. For guidance on selection of personal protective equipment see Chapter VIII of this Material Safety Data Sheet. For guidance on disposal of spilled material see Chapter XIII of this Material Safety Data Sheet. Shut off leaks, if possible without personal risks. Remove all possible sources of ignition in the surrounding area. Use appropriate containment to avoid environmental contamination. Prevent from spreading or entering drains, ditches or rivers by using sand, earth, or other appropriate barriers. Attempt to disperse the vapor or to direct its flow to a safe location for example by using fog sprays. Take precautionary measures against static discharge. Ensure electrical continuity by bonding and grounding (earthen) all equipment. Monitor area with combustible gas indicator.

Environmental precautions and Clean Up Methods: For large liquid spills (> 1 drum), transfer by mechanical means such as vacuum truck to a salvage tank for recovery or safe disposal. Do not flush away residues with water. Retain as contaminated waste. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely. For small liquid spills (< 1 drum), transfer by mechanical means to a labeled, sealable container for product recovery or safe disposal. Allow residues to evaporate or soak up with an appropriate absorbent material and dispose of safely. Remove contaminated soil and dispose of safely.

Additional Advice: See Section XIII for information on disposal. Notify authorities if any exposure to the general public or the environment occurs or is likely to occur.
VII. HANDLING & STORAGE

General Precautions: Avoid breathing of or contact with material. Only use in well ventilated areas. Wash thoroughly after handling. For guidance on selection of personal protective equipment see Chapter VIII of this Material Safety Data Sheet. Use the information in this data sheet as input to a risk assessment of local circumstances to help determine appropriate controls for safe handling, storage and disposal of this material.

Handling: Handling Temperature: Ambient.
Storage: Storage Temperature: Ambient.
Product Transfer: Keep containers closed when not in use. Do not use compressed air for filling, discharging or handling.
Recommended Materials: For containers, or container linings use mild steel, stainless steel.
Unsuitable Materials: Aluminum.
Container Advice: Containers, even those that have been emptied, can contain explosive vapors. Do not cut, drill, grind, weld or perform similar operations on or near containers.
Additional Information: Glycol ethers can be peroxide formers.

VIII. EXPOSURE CONTROLS / PERSONAL PROTECTION

Occupational exposure limits: No limits have been assigned for this product.

Personal protective equipment

Respiratory system: Use only with adequate ventilation. If ventilation is inadequate, use respirator that will protect against organic vapor and dust/mist.

Skin and body: Wear apron or overall if potential for exposure is splashes.

Hands: Wear gloves that cannot be penetrated by chemicals or oil (PVC gloves)

Eyes: Avoid contact with eyes. Chemical splash goggles.

IX. PHYSICAL/CHEMICAL CHARACTERISTICS

Appearance: Clear, Slightly Yellow Liquid.
Odor: Mild Ethereal.
Density: 950 – 1,030 kg/m³ at 20 °C
Boiling point: Typical 217 °C
Flash point: Typical 123 °C (ASTM D-93, Setaflash CC)
Pour Point: < -20 °C
Kinematic Viscosity, cSt at 40 °C: 6.5 – 7.5
Explosion / Flammability limits in air: 0.8 – 3.8% v (Major homologue).
Auto-ignition temperature: 213 °C (ASTM D-2155)
Vapor pressure: 0.56 mbar 20 °C
Evaporation rate (nBuAc=1): 0.01 (ASTM D 3539, nBuAc = 1)
Relative Vapor Density: 6.65 (Air = 1.0)
Water solubility: Completely miscible in water at 20 °C.
n-octanol/water partitioning coefficient (log Pow): 0.51 (OECD 107, major homologue).
PH (50% in water): 6.5 – 9.0
Mean Molar Mass: 210 – 235
X. STABILITY/REACTIVITY DATA


Conditions to Avoid: High Temperature. Avoid heat, sparks, open flames and other ignition sources.


Hazardous Decomposition Products: Thermal decomposition is highly dependent on conditions. A complex mixture of airborne solids, liquids and gases, including carbon monoxide, carbon dioxide and other organic compounds will be evolved when this material undergoes combustion or thermal or oxidative degradation.

Hazardous polymerization: Will not occur.

XI. TOXICOLOGICAL INFORMATION

Acute Toxicity

Oral:  
LD50 > 2,022 mg/kg, Rat.  
LD50 5,300 mg/kg, Rat, major homologue.

Dermal:  
LD50 > 3,540 mg/kg, Rabbit major homologue.

Inhalation:  
LC50 > 200 mg/kg (1h), Rat major homologue.

Skin: Prolonged/repeated contact may cause defatting of the skin which can lead to dermatitis. May cause moderate irritation to skin.

Chronic Toxicity

Eye: Irritancy. The eye irritancy has been investigated by OECD Test method 405. Single application to the rabbit eye produced conjunctival irritation and transient corneal damage. The effect was insufficient to warrant classification as an eye irritant.

Skin: Irritancy. The skin irritancy has been investigated by OECD Test method 404. A single 4h semi-occlusive application to intact rabbit skin produces minimal signs of irritation (mean scores for erythema or oedema less than 2). The degree of irritation was insufficient to warrant labeling as a skin irritant.

Carcinogenic effects: No component of this product at levels greater than 0.1% is identified as a carcinogen by ACGIH, the International Agency for Research on Cancer (IARC) or the European Commission (EC).

Mutagenic effects: No component of this product at levels greater than 0.1% is classified by established regulatory criteria as a mutagen.

Reproductive effects: No component of this product at levels greater than 0.1% is classified by established regulatory criteria as a reproductive toxin.

Developmental and teratogenic effects: No component of this product at levels greater than 0.1% is classified by established regulatory criteria as a teratogenic or embryo toxic.

XII. ECOLOGICAL INFORMATION

Ecotoxicity

Acartia tonsa: LC50 310 mg/L (48h)
Skeletonema costatum: EC50 391 mg/L (72h)
Corophium volutator: LC50 6,597 mg/L (240h)
Scophthalmus maximus: LC50 1,800 mg/L (96h)

Mobility: This product may move with surface or groundwater flows because its water solubility is 100% at ambient temperatures. If released to the soil it will evaporate at a slow rate.

Persistence/degradability: This product is readily biodegradable. BOD 28d = 70% ThOD. Oxidizes rapidly by photo-chemical reactions in air.

Bioaccumulation: Not expected to bioaccumulate significantly. (BCF < 1.0 of the major homologue).

WGK: 0
**NOV Glycol MC Material Safety Data Sheet**

### XIII. DISPOSAL CONSIDERATIONS

Disposal considerations.

**Material Disposal:** Recover or recycle if possible. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste classification and disposal methods in compliance with applicable regulations.

**Container Disposal:**
Drain container thoroughly. After draining, vent in a safe place away from sparks and fire. Residues may cause an explosion hazard. Do not puncture, cut or weld drums which are not cleaned. Send to drum recoverer or metal reclaimer.

### XIV. TRANSPORT INFORMATION

Not classified as hazardous for transport (DOT USA, ADR/RID, ANDR, IMDG, ICAO/IATA).

Important Note: Shipping description may vary based on mode of transport, quantities, package size, and/or origin and destination. Consult your company's Hazardous Materials/Dangerous Goods expert for information specific to your situation.

### XV. REGULATORY INFORMATION

The regulatory information is not intended to be comprehensive. Other regulations may apply to this material.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

**Canada**
**WHMIS Status:** Controlled.
**WHMIS Hazard Classification:** D/2B.

**EU**
Label requirements

**Hazard Symbol(s)**

- irritant

**USA**
**OSHA Status:** Hazardous

**SARA 311-312 Hazard Classification(s):**
Immediate (acute) health hazard.

**SARA 313:** None unless listed below
Polyethylene glycol monobutyl ether (glycol ethers category).

**Indication of danger**

**Risk phrases**
- R36- Irritating to eyes.
- S07- Keep containers closed.
- S24/25- Avoid contact with skin and eyes.
- S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical attention.
- S46- If swallowed, seek medical advice immediately and show this container or label.
NOV Glycol MC

Material Safety Data Sheet

Contains
Poly(oxy-1,2-ethanediyl),alpha.-butyl-.omega.-hydroxy-
NLP 500-012-0

EU regulations
Classification and labeling have been done according to EU directives 1999/45/EC
and 67/548/EEC.

Inventories
Australia
AICS
Listed.
Canada
DSL
Listed.
Japan
ENCS
Listed.
United States
TSCA
Listed.
European Union
NLP
Listed.
Korea
ECL
Listed.
Philippines
PICCS
Listed.
Asia
ASIA-PAC
Listed.
New Zealand
NZIoC
Listed.

United States
TSCA
Listed.
9004-77-7

European Union
NLP
Listed.
500-012-0
REACH
Pre-registered

XVI. OTHER INFORMATION

Full text of R-phrases referred to in Sections II and III
R35: Irritating to eyes.

HMIS Hazard Ratings: Health 2, Flammability 1, Chemical Reactivity 0

DISCLAIMER:
Although the information and recommendations set forth herein (hereinafter “Information”) are presented
in good faith and believed to be correct as of the date hereof, NOV FluidControl, makes no representations
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receiving this MSDS will make own determination as to its suitability for their intended purpose prior to
use. Since the product is within the exclusive control of the user, it is the user’s obligation to determine
the conditions of safe use of this product. Such conditions should comply with all Federal Regulations
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