

Safety Data Sheet

Version 1.1

Revision date: Mar 9, 2017



Wash Buffer 2 - #N135 (for #SG081, #SG083, #N051, #N053)

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

Product identifier: Wash Buffer 2 (for #SG081, #SG083, #N051, #N053)

Product code: #N135

Manufacturer's name and address: Luna Nanotech Inc., 439 University Avenue, Suite 500
Toronto, ON M5G 1Y8

Business telephone number: +1-416-716-9941

Emergency telephone numbers: Canada: Canutec 1-888-226-8832
USA: Chemtrec 1-800-424-9300

Product use: For research use only. Not intended for human or animal diagnostic or therapeutic uses.

SECTION 2: HAZARDS IDENTIFICATION

Hazardous ingredients: Ethanol

CAS #: 64-17-5

GHS classification

| | |
|---------------------------------|------------------------------|
| Flammable liquids: | Category 3 |
| Specific target organ toxicity: | Category 3 (single exposure) |
| Skin irritant: | Category 2 |
| Eye irritant: | Category 2B |
| Acute aquatic toxicity | Category 2 |



Target organs: Liver, heart, nervous system

Signal word: Danger

Hazard statements:

| | |
|--------------|----------------------------------|
| H225: | Highly flammable liquid or vapor |
| H315 + H320: | Causes skin and eye irritation |
| H335: | May cause respiratory irritation |
| H401: | Toxic to aquatic life |

Precautionary statements

| | |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------|
| P210: | Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. |
| P261: | Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. |
| P305 + P351 + P338: | IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. |

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HMIS classification

Health hazard: 2
Chronic health hazard: *
Flammability: 3
Physical hazards: 0

Potential health effects

Inhalation: May be harmful if inhaled. Causes respiratory tract irritation.
Skin: May be harmful if absorbed through skin. Causes skin irritation.
Eyes: Causes eye irritation.
Ingestion: May be harmful if swallowed.

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture: Mixture

Hazardous ingredients

Chemical name: Ethanol
Chemical formula: C₂H₆O
Molecular weight: 46.07 g/mol
CAS number: 64-17-5
EC number: 200-578-6
Concentration: 60 – 80 % v/v

SECTION 4: FIRST AID MEASURES

General advice: Consult a physician. Show this safety data sheet to the doctor in attendance. Move out of dangerous area.

If inhaled: If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.

In case of skin contact: Wash off with soap and plenty of water. Consult a physician.

In case of eye contact: Rinse thoroughly with plenty of water for at least 15 minutes and consult a physician.

If swallowed: Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.

SECTION 5: FIREFIGHTING MEASURES

Conditions of flammability: Flammable in the presence of a source of ignition when the temperature is above the flash point. Keep away from heat/sparks/open flame/hot surface. No smoking.

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| Flash point: | 20°C - 22°C (68°F - 71.6°F) |
| Means of extinction: | Use water spray, alcohol-resistant foam, dry chemical or CO ₂ |
| Special protective equipment for firefighters: | Wear self-contained breathing apparatus for firefighting if necessary. |
| Hazardous decomposition products formed under fire conditions: | Not available |

SECTION 6: ACCIDENTAL RELEASE MEASURES

| | |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Personal precautions: | Use personal protective equipment. Avoid contact with the skin and the eyes. Use personal protective equipment. Ensure adequate ventilation. |
| Environmental precautions: | Do not let product enter drains. Discharge into the environment must be avoided. |
| Methods and materials for containment and cleaning up: | Contain spillage, and then collect with an electrically protected vacuum cleaner or by wet-brushing and place in container for disposal according to local regulations. |

SECTION 7. HANDLING AND STORAGE

| | |
|-------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Handling: | Avoid contact with skin and eyes. Avoid inhalation of vapor or mist. Use explosion-proof equipment. Keep away from sources of ignition. No smoking. Take measures to prevent the build up of electrostatic charge. |
| Conditions for safe storage: | Keep container tightly closed in a dry and well-ventilated place. Containers which are opened must be carefully resealed and kept upright to prevent leakage. Hygroscopic. |

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

| | |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Respiratory protection: | If exposure limits are exceeded or irritation is experienced, respiratory protection approved under NIOSH/MSHA must be worn. For high airborne contaminant concentration positive-pressure supplied air respirators may be required. |
| Eye protection: | Wear safety glasses with side shields conforming to EN166. Avoid contact with the eyes. |
| Hand protection: | Handle with gloves. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and |

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| | dry hands. |
| Skin and body protection: | Wear flame retardant antistatic protective clothing. |
| Hygiene measures: | Handle in accordance with good industrial hygiene and safety practice. |
| Specific engineering controls: | Use appropriate mechanical exhaust or laboratory fume hood to avoid exposure. |

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

| | |
|-------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Appearance: | Liquid |
| Color: | Clear |
| Odour: | Alcohol odour |
| Taste: | Not available |
| pH: | Not available |
| Boiling point: | Not available |
| Melting point: | Not available |
| Flash point: | 20°C - 22°C (68°F - 71.6°F) |
| Evaporation rate: | Not available |
| Explosion limits: | 3.3 - 19.0 vol % 67 - 290 g/m ³ |
| Specific gravity: | 0.89 g/cm ³ |
| Vapor pressure: | 59.5 hPa (44.6 mmHg) at 20.0 °C (68.0 °F) |
| Vapor density: | Not available |
| Volatility: | Not available |
| Solubility: | Soluble in water. Soluble in ether. Soluble in acetone. Soluble in chloroform. Soluble in oils/fats. Soluble in methanol. Soluble in acids. Water: complete; Ether: complete; Acetone: complete |
| Thermal decomposition: | Not available |
| Viscosity: | Not available |
| Other properties: | Gas/vapour heavier than air at 20°C. Clear. Hygroscopic. Volatile. Substance has neutral reaction. |

SECTION 10: STABILITY AND REACTIVITY

| | |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Stability: | Stable under recommended storage conditions. Hygroscopic. |
| Incompatible products: | Strong acids, strong bases. |
| Conditions to avoid: | Direct sunlight. Extremely high or low temperatures. Open flame. |
| Hazardous decomposition products | |
| Upon combustion: | CO and CO ₂ are formed. Reacts violently with many compounds e.g.: with (strong) oxidizers: (increased) risk of fire/explosion. Violent to explosive reaction with (some) acids. |

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SECTION 11: TOXICOLOGICAL INFORMATION

Acute toxicity

Product

Acute oral toxicity: Not available
Acute inhalation toxicity: Not available
Acute dermal toxicity: Not available

Ingredients

Ethanol:

Acute oral toxicity: LD50 oral rat - 7,060 mg/kg
Remarks: lungs, thorax, or Respiration: other changes

Acute inhalation toxicity: LC50 inhalation rat 20000 ppm (10 hour exposure time)

Skin corrosion/irritation

Ingredients

Ethanol:

Irritating to skin. 24 h (rabbit).

Serious eye damage/eye irritation

Product:

Mild eye irritation. 24 h (rabbit).

Germ cell mutagenicity:

Not available

Carcinogenicity:

Carcinogenicity – Mouse – Oral
Tumorigenic: Equivocal tumorigenic agent by RTECS criteria. Liver: Tumors.
Blood: Lymphomas including Hodgkin's disease.

Reproductive toxicity:

Reproductive toxicity - Human - female - Oral Effects on Newborn: Apgar score (human only). Effects on Newborn: Other neonatal measures or effects. Effects on Newborn: Drug dependence.

STOT-singe exposure:

Inhalation – May cause respiratory irritation.

STOT-repeated exposure:

Not available

Aspiration toxicity:

Not available

Signs and symptoms of exposure:

Central nervous system depression, narcosis, damage to the heart.

Further information:

RTECS: KQ6300000

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SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity: Harmful to aquatic organisms

Toxicity to fish: LC50 - Oncorhynchus mykiss (rainbow trout) - 13,000.00 mg/L - 96h
LC50 - Oncorhynchus mykiss (rainbow trout) - 10,400.00 mg/L - 96h
LC50 - Pimephales promelas (fathead minnow) - 15,300.00 mg/L - 96h
LC50 - other fish - 10,000.00 mg/L - 24h

Persistence and degradability: Not available

SECTION 13: DISPOSAL CONSIDERATIONS

Product: The product should not be allowed to enter drains, watercourses or the soil. Disposing should be performed in compliance with local and national regulation by a licensed waste management company.

Contaminated packaging: Dispose of as unused product. Do not reuse empty containers.

SECTION 14: TRANSPORT INFORMATION

DOT (US)

Ingredients

Ethanol

UN number: UN number: 1170
Class: 3
Packing group: II
Poison inhalation hazard: No

IATA

Ingredients

Ethanol

UN number: UN number: 1170
Class: 3
Packing group: II

IMDG

Ingredients

Ethanol

UN number: UN number: 1170
Class: 3
Packing group: II
EMS number: F-E, S-D

SECTION 15: REGULATORY INFORMATION

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OSHA Hazard

Flammable liquid, Irritant, Target Organ Effect

SARA 311/312 Hazards

Fire Hazard, Acute Health Hazard, Chronic Health Hazard

WHMIS Classification

B2 Flammable liquid

Flammable liquid

D2B Toxic Material Causing Other Toxic Effects

Moderate eye irritant

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.

SECTION 16: OTHER INFORMATION

The above information provided in this Materials Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of publication. The information given is designed only as a guidance for safe handling, processing, use, transportation, storage, disposal and release. This information is not to be considered 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 materials or in any process, unless specified in the text.

End of Material Safety Data Sheet