SAFETY DATA SHEET

1. IDENTIFICATION

PRODUCT IDENTIFIER:	NEOLUBE NO. 1 NEOLUBE NO. 2	**PRODUCT TYPE:**	DRY FILM LUBRICANT
RECOMMENDED USE:	LUBRICANT	**REGION:**	UNITED STATES
RESTRICTIONS ON USE:	NONE IDENTIFIED	**COMPANY PHONE NUMBER:**	810-984-4213
COMPANY:	HURON INDUSTRIES, INC.	**COMPANY FAX NUMBER:**	810-987-4199
COMPANY ADDRESS:	2301 16th STREET PORT HURON, MI 48060	**Medical Emergency Phone: Poison Control Center: 1-877-671-4608 (toll free)** **TRANSPORT EMERGENCY PHONE:** **INFOTRAC: 800-535-5053 Domestic (HURON 89770)** **INFOTRAC: +1-352-323-3500 International (HURON 89770)**	

2. HAZARD(S) IDENTIFICATION

EMERGENCY OVERVIEW

DANGER:

EXTREMELY FLAMMABLE LIQUID AND VAPOUR.
MAY BE FATAL IF SWALLOWED AND ENTERS AIRWAYS.
CAUSES SKIN IRRITATION.
MAY CAUSE AN ALLERGIC SKIN REACTION.
CAUSES SERIOUS EYE IRRITATION.
MAY CAUSE DROWSINESS OR DIZZINESS.

HAZARD CLASS	HAZARD CATEGORY
FLAMMABLE LIQUID	1
SKIN IRRITATION	2
EYE IRRITATION	2A
SKIN SENSITIZATION	1
SPECIFIC TARGET ORGAN TOXICITY-SINGLE EXPOSURE	3
ASPIRATION HAZARD	1

PICTOGRAM(S)

PRECAUTIONARY STATEMENTS

PREVENTION:	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof equipment. Use non-sparking tools. Take action to prevent static discharge. Wear protective gloves, eye protection and face protection. Wash thoroughly after handling. Avoid breathing mist, vapours or spray. Contaminated work clothing should not be allowed out of the workplace. Use only outdoors or in a well-ventilated area.
RESPONSE:	IF ON SKIN (or hair): Take off immediately all contaminated clothing and wash it before reuse. Rinse skin with plenty of water. If skin irritation or rash occurs: Get medical attention. 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 attention. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or physician if you feel unwell. IF SWALLOWED: Immediately call a POISON CENTER or physician. Do NOT induce vomiting. In case of fire: Use foam, dry chemical, or carbon dioxide to extinguish.
STORAGE:	Store in a well-ventilated place. Keep cool. Keep container tightly closed. Store locked up.
DISPOSAL:	Dispose of contents and/or containers to Federal, State/Provincial and local governmental regulations.

Classification complies with OSHA Standard (29 CFR 1910.1200) and is consistent with the provisions of the United Nations Globally Harmonized System of Classification and Labeling of Chemicals (GHS).

SEE SECTION 11 FOR ADDITIONAL TOXICOLOGICAL INFORMATION

3. COMPOSITION/INFORMATION ON INGREDIENTS

HAZARDOUS COMPONENT(S)	CAS NUMBER	PERCENTAGE*
2-PROPANOL	67-63-0	60-100
GRAPHITE	7782-42-5	1-5

*EXACT PERCENTAGE IS A TRADE SECRET. Concentration range is provided to assist users in providing appropriate protections.

4. FIRST-AID MEASURES

INHALATION:	If mist or vapour of this product is inhaled, remove person immediately to fresh air. Seek medical attention if symptoms develop or persist.	**INGESTION:**	Get immediate attention. DO NOT induce vomiting unless directed to do so by medical personnel. Give one to two glasses of water or milk. Never give anything by mouth to a victim who is unconscious or is having convulsions.
EYE CONTACT:	In case of contact with the eyes, rinse immediately with plenty of water for 15 minutes, and seek immediate attention.	**SKIN CONTACT:**	Immediately wash skin thoroughly with soap and water. If symptoms develop and persist, get medical attention.
SYMPTOMS:	See Section 11.		
NOTES TO PHYSICIAN:	This material, if aspirated into the lungs, may cause lipoid pneumonitis. Treat affected person appropriately.		

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA:	Water Spray (Fog), Foam, Dry Chemical Or Carbon Dioxide.	**SPECIAL FIRE FIGHTING PROCEDURES:**	Wear full protective clothing. Wear self-contained breathing apparatus.
UNUSUAL FIRE OR EXPLOSION HAZARDS:	DANGEROUS when exposed to heat or flame. This material can be ignited by flame or spark under normal atmospheric conditions. Vapours are heavier than air and may travel to ignition sources and flash back.	**HAZARDOUS COMBUSTION PRODUCTS:**	Upon decomposition, this product emits carbon monoxide, carbon dioxide, and/or low molecular weight hydrocarbons.

6. ACCIDENTAL RELEASE MEASURES

Use Personal Protection Recommended In Section 8, Isolate The Hazard Area And Deny Entry To Unnecessary And Unprotected Personnel.

ENVIRONMENTAL PRECAUTIONS:	Prevent further leakage or spillage if safe to do so. Remove all sources of ignition. Wear appropriate protective equipment and clothing during clean up.	**CLEAN-UP METHODS:**	Collect spilled material with an inert absorbent such as sand or vermiculite. Place in properly labeled closed container. Dispose of according to federal, state, and local governmental regulations.

7. HANDLING AND STORAGE

HANDLING:	Avoid contact with eyes, skin, and clothing. Wash thoroughly after handling. Avoid breathing vapours or mists of this product. Do not take internally. For industrial use only. Keep away from heat, spark, and flame. Ground and bond all equipment as required (when transferring products).	**STORAGE:**	For safe storage, store at or below <90 °F (<32.2 °F). Keep container tightly closed and in a cool, well-ventilated place away from incompatible materials. Remove all sources of ignition.

For Information On Product Shelf Life, Please Review Labels On Container Or Check The Technical Data Sheet.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

ENGINEERING CONTROLS:	Provide local and general exhaust ventilation to effectively remove and prevent buildup of any vapours or mists generated from the handling of this product.	**RESPIRATORY PROTECTION:**	If ventilation is not sufficient to effectively prevent buildup of aerosols, mists, or vapours, appropriate NIOSH/MSHA respiratory protection must be provided.
EYE/FACE PROTECTION:	Wear chemical goggles; face shield (if splashing is possible).	**SKIN PROTECTION:**	Wear impervious gloves for prolonged contact. Gloves should be tested to determine suitability for prolonged contact. Use of impervious apron and boots are recommended.

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

HAZARDOUS COMPONENT(s)	ACGIH TLV	OSHA PEL	AIHA WEEL	OTHER
2-PROPANOL	200 ppm TWA 400 ppm STEL	400 ppm (980 mg/m3)PEL	None	None
GRAPHITE	2 mg/m3 TWA Respirable Fraction.	5 mg/m3 PEL Respirable Fraction. 15 mg/m3 PEL Total Dust 15 MPPCF TWA	None	None

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Black Liquid	**ODOUR:**	Alcohol
pH:	Not Applicable	**ODOUR THRESHOLD:**	Not Available
DECOMPOSITION TEMPERATURE:	Not Available	**VAPOUR PRESSURE:**	32.1 mm hg
MELTING/FREEZING POINT:	<-89°C (<-128.2°F)/None	**INITIAL BOILING POINT/RANGE:**	35°C (95°F)/None
SPECIFIC GRAVITY:	0.77 – 0.81	**VAPOUR DENSITY:**	Not Determined
FLAMMABILITY (FLASH POINT):	11.1°C (51.98°F) Pensky Martens Closed Cup	**AUTO IGNITION TEMPERATURE:**	>398°C (>748.4°F)
FLAMMABLE/EXPLOSIVE LIMITS-LOWER:	2 %	**FLAMMABLE/EXPLOSIVE LIMITS-UPPER:**	12 %
EVAPORATION RATE:	1 (Butyl acetate=1)	**SOLUBILITY:**	Miscible
VISCOSITY:	50-200 cp	**VOC CONTENT:**	766 g/l
PARTITION COEFFICIENT (n-octanol/water):	Not Determined		

10. STABILITY AND REACTIVITY

STABILITY:	Stable at normal conditions.	**HAZARDOUS REACTIONS:**	None under normal processing.
INCOMPATIBLE MATERIALS:	This product may react with strong oxidizing agents.	**CONDITIONS TO AVOID:**	Heat, flames, sparks and other sources of ignition.
HAZARDOUS DECOMPOSITION PRODUCTS:	Upon decomposition, this product emits carbon monoxide, carbon dioxide, and/or low molecular weight hydrocarbons.	**REACTIVITY:**	Not Available

11. TOXICOLOGICAL INFORMATION

RELEVANT ROUTES OF EXPOSURE:	Skin, Inhalation, Eyes

POTENTIAL HEALTH EFFECTS/SYMPTOMS	
INHALATION:	This product is irritating to the respiratory system. Excessive inhalation of this material causes headache, dizziness, nausea, and incoordination.
SKIN CONTACT:	Prolonged or repeated skin contact may result in redness, burning sensation or dermatitis. A component in this product may be absorbed through the skin in harmful amounts.
EYE CONTACT:	This product is severely irritating to the eyes and may cause irreversible damage including burns and blindness.
INGESTION:	Small amounts of this product, if aspirated into the lungs, may cause mild to severe pulmonary injury. May be harmful if swallowed. Ingestion can cause gastrointestinal irritation, nausea, vomiting, and diarrhea. May cause dizziness, incoordination, headache, nausea, and vomiting.

Hazardous Component(s)	LD50S and LC50s	Immediate and Delayed Health Effects
2-Propanol	Oral LD 50 (RAT) = 5,045 mg/kg Oral LD50 (RABBIT) = 6,410 mg/kg Oral LD50 (RAT) = 4.7 g/kg Oral LD 50 (RABBIT) = 8.0 g/kg Oral LD50 (RABBIT) = 5.03 g/kg Dermal LD50 (RABBIT) = 12,800 mg/kg	Allergen, Blood, Brain, Central nervous System, Irritant, Kidney, Liver, Spleen
Graphite	None	Lung

HAZARDOUS COMPONENT(S)	NTP CARCINOGEN	IARC CARCINOGEN	OSHA CARCINOGEN (Specifically Regulated)
2-Propanol	No	No	No
Graphite	No	No	No

12. ECOLOGICAL INFORMATION

ECOLOGICAL INFORMATION: Not Available.

13. DISPOSAL CONSIDERATIONS

RECOMMENDED METHOD OF DISPOSAL:	Follow all local, state, federal, and provincial regulations for disposal.	**HAZARDOUS WASTE NUMBER:**	If discarded, this product is considered a RCRA ignitable waste, D001.

Information provided is for unused product only.

14. TRANSPORT INFORMATION

The transport information provided in this section only applies to the material/formulation itself, and is not specific to any package/configuration.

METHOD	US Department Of Transportation Ground (49CFR)	International Air Transportation (ICAO/IATA)	Water Transportation (IMO/IMDG)
PROPER SHIPPING NAME	ISOPROPANOL	ISOPROPANOL	ISOPROPANOL
HAZARD CLASS/DIVISION	3	3	3
IDENTIFICATION NUMBER	UN1219	UN1219	UN1219
PACKING GROUP	II	II	II

15. REGULATORY INFORMATION

UNITED STATES REGULATORY INFORMATION

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the toxic substances control act inventory.
TSCA 12(b) Export Notification: None above reporting de minimus.

CERCLA/SARA Section 302 EHS: None above reporting de minimus.
CERCLA/SARA Section 311/312: Immediate health, fire.
CERCLA/SARA Section 313: None above reporting de minimus.

California Proposition 65: No California proposition 65 listed chemicals are known to be present.

CANADA REGULATORY INFORMATION

CEPA DSL/NDSL Status: All components are listed on or are exempt from listing on the Canadian domestic substances list.

16. OTHER INFORMATION

This safety data sheet contains changes from the previous version in sections: New Safety Data Sheet Format

 1102MSDS

REVISION NUMBER:	2	**ISSUE DATE:**	04/02/15
PREPARED BY:	DEBRA HARDY Debra Hardy	**DATE PREPARED:**	04/02/15

Huron

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THE HOME OF COLLOIDAL GRAPHITE

TECHNICAL DATA SHEET

NEOLUBE NO. 1 LUBRICANT - COLLOIDAL GRAPHITE IN ISOPROPANOL

APPLICATION: NUCLEAR POWER GENERATING PLANTS, NUCLEAR REACTORS, COMMERCIAL AND NAVAL

Neolube No. 1 is a dry film, conductive lubricant, used extensively at nuclear power generating plants and other nuclear facilities as an anti-seize compound, thread lubricant, and for lubricating moving parts and rubbing surfaces.

The composition of this material is 99% pure furnace graphite particles, a thermoplastic resin and isopropanol. The material has excellent radiation resistance and high chemical purity. The thin, non-corrosive film of **Neolube No. 1** prevents seizing, fretting, galling and resists abrasion. It is easy to apply by spray, dip or brush and has excellent adhesion after a fast air dry. The dry film of **Neolube No. 1** will not migrate and is unaffected by frost.

Neolube No. 1 has satisfied the stringent requirements for lubricating the internal and auxiliary equipment mechanisms of commercial and naval nuclear reactor systems. **Neolube No. 1** allows easy assembly, trouble-free operation and non-destructive disassembly. **Neolube No. 1** provides non-corrosive, dry adherent lubrication for metal parts with limited clearances in applications were control of impurities is required.

Neolube No. 1 is ***NOT RECOMMENDED FOR LUBRICATING THREADS IN THE REACTOR PRIMARY CONTAINMENT AREAS***, where operating temperatures for the fittings are greater than 400°F. Neolube No. 1260 is recommended for use in containment and/or secondary side in nuclear applications. ***NOT RECOMMENDED FOR USE IN OXYGEN SYSTEMS.***

A Certificate of Quality Conformance and Analysis is available for each lot upon request.

Physical and Chemical Requirements	**MIL-L-24131C**
Total Solids Content, weight percent **Graphite Content,** percent of total solids	3.3% ± 0.50% 75% ± 5%
Particle size, microns Maximum dimension of 90% of the particles Maximum dimension of any particle	 4 Microns 10 Microns
Ash, weight percent, maximum on total solids **Fluorine,** parts per million, maximum on total solids **Chlorine,** parts per million, maximum on total solids **Sulfur,** parts per million, maximum on total solids **Lead,** parts per million, maximum on total solids	0.75% 20 PPM 200 PPM 200 PPM 150 PPM
Film Properties (regular & irregular surfaces): **Adherence** **Spalling** **Appearance**	 The coated surface shall be dry and shall not become exposed when subjected to light abrasion. Film continuity shall not be broken, metal surfaces shall not be exposed. Dry, non-oily.
Odor	Characteristic of isopropanol, no odor of halogenated solvents shall be detected.

Mercury: Instruments and equipment containing mercury or compounds of mercury were not used in the manufacture and packaging of the lubricant, nor in testing and inspection, unless samples were discarded after the test. During the manufacturing processes, tests, and inspection, **Neolube No. 1** did not come in contact with mercury or any of its compounds nor any mercury-containing devices employing a single boundary of containment. Compounds containing boron were not used in cleaning, processing equipment, or containers. There is no intentional addition of low melting point metals such as lead, bismuth, zinc, mercury antimony, cadmium, tin, silicon, gallium, indium or arsenic to this product; nor of copper or silver. MeOH is not a component of **Neolube No. 1**. This product is not approved by NSF for drinking water applications.

Physical Properties
(As Supplied)

Lubricant	Processed micro graphite	Shelf Life	No limit in a closed container
Binder	Thermoplastic Resin	Flash Point	52°F (11°C)
Diluent	Isopropanol	Color	Black
Consistency	Liquid	Solids Content	3.30% ± 0.50%
Density	6.6 lb./gal (0.791 kg/l)		

(As a Cured Coating)

Service Temperature	400°F (204°C)	Intermittent Temperature	850°F (454°C)
Coefficient of Friction	0.15 (Static)		

Dilution:

Neolube No. 1, is supplied in a ready-for-use form conforming to the requirements of MIL-L-24131C. If further dilution is required by the application, add isopropanol while mixing uniformly.

Method of Use:

Substrates should be clean and dry before application. A solvent wipe and air dry is usually sufficient. For critical applications requiring maximum adhesion, mechanical or chemical pretreatment such as grit blasting, phosphating, anodizing or etching is recommended.

Application:

Mix uniformly before using. Apply with the brush in cap applicator or by conventional spray, brush or dip methods.

Cure Time:

Material air dries in approximately 5 minutes, depending on temperature and humidity.

Packaging:

Neolube No. 1 is packaged in 2 ounce and 8 ounce non-halogenated plastic bottles with a brush in cap applicator.

Precautions:

Employ the customary safeguards in storing, handling and applying flammable materials of this type. Use with adequate local exhaust ventilation if product is sprayed. Avoid prolonged contact with eyes, skin, and clothing. (See the Safety Data Sheet for proper first aid instructions.) Containers must be tightly resealed to prevent evaporation and contamination.

Qualification Approval:

Approving organization is the Naval Ship Engineering Center, Hyattsville, Maryland 20782. The date of the approval letter is 21 June 1974, Test Report Number (QPL) 10744.

PLEASE NOTE: "NEOLUBE PRODUCTS ARE NOT CONSIDERED SAFETY-RELATED GOODS. AS SUCH, THEY ARE NOT DESIGNED, FABRICATED, HANDLED, SHIPPED, STORED, ETC., UNDER A QUALITY ASSURANCE PROGRAM THAT COMPLIES WITH THE REQUIREMENTS OF 10CFR50, APPENDIX B, 10CFR21, OR ANSI STANDARDS."

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