



# Safety Data Sheet

## Black Liquor

### 1. Identification

TRADE NAME (AS LABELED): Black Liquor

SYNONYMS: Spent Pulping Liquor

PRODUCT USES: The liquor is burned in the recovery boiler to reclaim certain pulping chemicals. Tall oil may also be extracted from the liquor.

CHEMICAL NAME/CLASS: Chemical Mixture

MANUFACTURER'S NAME: WestRock

ADDRESS: 504 Thrasher Street Norcross, GA 30071

EMERGENCY PHONE: (800) 424-9300 (CHEMTREC)


BUSINESS PHONE: 770-448-2193

### 2. Hazard(s) Identification

Signal Word: <b>DANGER</b> Black Liquor - CAS# 66071-92-9		
GHS Classification/Category	Hazard Statement(s)	Pictogram
HEALTH  Skin Corrosion/Irritation- Category 1  Eye Damage/Irritation- Category 1	Causes Severe Skin Burns and Eye Damage  Causes Serious Eye Damage	
Acute Toxicity Oral- category 3*	Toxic If Swallowed	
Specific Target Organ Toxicity (STOT) Single Exposure Respiratory- Category 1B	May Cause Damage to the Respiratory System	

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## 2. Hazard Identification (cont'd.)

GHS Classification/Category	Hazard Statement(s)	Pictogram
Skin Sensitization- Category- 1B	May Cause an Allergic Skin Reaction	

\* **NOTE:** Acute toxicity determinations have not been made for black liquor as a product (CAS # 66071-92-9) due to its high pH (12-13). Caustic liquids cause coagulative necrosis that results in substantial tissue damage. Due to the caustic nature of the solution it is expected that there would be toxic effects (e.g. edema) to the respiratory system if mists or vapors are inhaled and toxic effects for skin and eye exposures, especially at elevated temperatures. The toxicity ranking above is associated with representative components of the black liquor (sodium sulfide and sodium hydroxide, etc.) which are presented as a determination of acute toxicity of the complex mixture by analogy.

### Precautionary Statements:

**PREVENTION STATEMENTS:** Wear gloves, clothing, eye, face and respiratory protection. Avoid breathing mist or vapors. Use only outdoors or in a well-ventilated area. Contaminated clothing should not be taken out of the workplace. Avoid release to the environment.

**RESPONSE STATEMENTS:** 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 swallowed, rinse mouth. If swallowed or inhaled immediately call a poison center or doctor/physician and remove victim to fresh air and keep at rest in a position comfortable for breathing. If on skin wash with plenty of water. Take off immediately all contaminated clothing. Rinse skin with water/shower, continue rinsing. Wash contaminated clothing before reuse. If skin irritation or rash occurs, get medical advice/attention. Wash hands after handling.

**DISPOSAL:** Dispose of in accordance with Federal, state and local regulations

**Ingredients of Unknown Acute Toxicity (>1%):** Not applicable.

**CAUTION:** Caustic process liquors, may under certain conditions of reaction, produce total reduced sulfur gases (TRS) including hydrogen sulfide (H<sub>2</sub>S); methyl mercaptan (MM), dimethyl sulfide (DMS) and dimethyl disulfide (DMDS). These four gases may be formed by reaction at varying concentrations depending on environmental conditions (acidification, heating, etc.) as well as the location within the process where gases are generated (digestion vs. evaporation, etc.). These gases are hazardous (H<sub>2</sub>S being the most toxic for acute short term exposures). The concentration of the gases will also vary depending on whether the liquor is a strong or weak liquor but are typically below 1%. Potential exposures must be evaluated in process areas where emissions from reaction are likely and during line break and confined space entry in vessels and piping which have contained liquors. Although the sulfide content of black liquors are high, the sulfide gas concentrations are very low at the normal pH levels of these liquors. Unless the liquor is acidified to pH < 10, free H<sub>2</sub>S concentrations would be very low. The DMS and DMDS are not pH dependent and will exert some vapor pressure; even at the high pH of liquor.

## 3. Composition/Information on Ingredients

Component	CAS#	EC#	Wt %
Degraded hemicellulose and cellulose (C <sub>6</sub> H <sub>10</sub> O <sub>5</sub> ) <sub>n</sub>	9004-34-6	232-674-9	30-60
Degraded Lignin	8068-05-1	None	20-50
Sodium Hydroxide (NaOH)	1310-73-2	215-185-5	<1-5
Sodium Sulfide (Na <sub>2</sub> S)	1313-82-2	215-211-5	<1-5

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Component	CAS#	EC#	Wt %
Sodium Carbonate (Na <sub>2</sub> CO <sub>3</sub> )	497-19-8	207-838-8	5-15
Sodium Sulfate (Na <sub>2</sub> SO <sub>4</sub> )	7757-82-6	231-820-9	<1-10
Hydrogen sulfide (H <sub>2</sub> S)	7783-06-4	231-977-3	<1
Methyl mercaptan-MM (CH <sub>4</sub> S)	74-93-1	200-822-1	<1-2
Dimethyl sulfide- DMS (C <sub>2</sub> H <sub>6</sub> S)	75-18-3	200-846-2	<1-2
Dimethyl disulfide -DMDS (C <sub>2</sub> H <sub>6</sub> S <sub>2</sub> )	624-92-0	210-871-0	<1-2

**Note:** Black liquor is a substance of highly variable chemical composition. The exact composition is dependent upon wood type, the concentration of the components in the white liquor used to digest the wood chips, and the actual process parameters. Exposure limits have not been established for black liquor. Black liquor may contain varying percentages of solids ranging from 2% to 80%. The chemical composition of black liquor varies based on its solids content. Content of TRS gases are also variable based on whether it is a strong or weak liquor.

#### 4. First-Aid Measures

**Ingestion:** Immediately contact local poison control center. Ingestion may cause irritation, discomfort and burning of the mucous membranes of the gastrointestinal tract. Symptoms may include nausea, vomiting, difficulty swallowing, diarrhea, and abdominal pain. DO NOT INDUCE VOMITING. Give 1-2 glasses of water if person is conscious. Never give anything by mouth to person who becomes unconscious.

**Eye Contact:** Immediately flush eyes with large amounts of temperate water for 15 minutes. May cause severe damage to the eyes, especially if heated. Contact medical support immediately if product contacts the eyes.

**Skin Contact:** May cause irritation, reddening, and burns. Remove contaminated clothes. Immediately wash affected area with water for 15 minutes or until slippery feeling is gone. Get medical help if irritation or burns are present after washing.

**Skin Absorption:** Some components of liquor be absorbed through the skin.

**Inhalation:** Inhalation may cause respiratory tract irritation, difficulty breathing, and respiratory tract damage. Symptoms may include coughing, burning, difficulty breathing and shortness of breath. Remove exposed person to fresh air.

**Symptoms or Effects:**

Acute Symptoms/Effects –Liquid is irritating and may cause chemical and/or thermal burns to the skin and eyes. Liquid may be toxic if swallowed or in contact with the skin.

Delayed Symptoms/Effects – Delayed effects may include chemical pneumonitis. See Section 11 for additional information on chronic effects.

#### 5. Fire- Fighting Measures

**Extinguishing Media and Restrictions:** Water, carbon dioxide, foam, or sand is recommended. Water spray is recommended to cool or protect exposed materials or structures. Carbon dioxide can displace oxygen. Use caution when applying carbon dioxide inside confined spaces.

## 5. Fire- Fighting Measures (cont'd.)

**Autoignition Temperature:** Not available.

**Special Firefighting Procedures:** As in any fire wear NIOSH-approved self contained breathing apparatus and appropriate protective clothing for the situation.

**Specific Hazards, Anticipated Combustion Products:** Toxic carbon monoxide, carbon dioxide, and oxides of sulfur including toxic levels of hydrogen sulfide may be produced as products of combustion.

**Unusual Fire and Explosion Hazards:** If TRS gases are produced they are flammable and may be ignited by heat or flames. Vapors may travel to ignition sources and flash back. Vapor explosion hazard exists when gases concentrate indoors or in enclosed spaces such as sewers.

**NFPA Rating (Scale 0-4):**      **Health = 3**      **Fire = 1**      **Reactivity = 1**

## 6. Accidental Release Measures

**Steps to be Taken In Case Material Is Released or Spilled:** Immediately notify safety and environmental personnel. CAUTION: do not divert to an acid sewer. Do not attempt to neutralize with acid. For a large spill in a clean area, dike and recover for reuse. Dispose of contaminated material. For a small spill, mix with absorbent material and dispose. Spills may present a slipping (physical) hazard. Follow all local, state, federal and provincial regulations for disposal. Avoid all contact with skin and eyes. Liquor may have an elevated temperature (140-240°F) in the process environment.

## 7. Handling and Storage

**Precautions to be Taken In Handling and Storage:** Wear personal protective equipment and follow the exposure control measures recommended in Section 8. Avoid contact with skin and eyes and prolonged breathing of vapor or mists. Avoid contact with acids and strong oxidizers. Follow good hygienic and housekeeping practices and wash before eating, drinking or smoking. Do not divert to acid sewer as hydrogen sulfide gases may be formed. Liquor may have an elevated temperature (140-240°F). Vessels which have contained black liquor should be checked for hydrogen sulfide before entering.

## 8. Exposure Control Measures/Personal Protection

### Exposure Limits/Guidelines:

Name	CAS#	Agency	Exposure Limits	Comments
Sodium Hydroxide (NaOH)	1310-73-2	OSHA ACGIH	PEL-Ceiling 2 mg/m <sup>3</sup> TLV-Ceiling 2 mg/m <sup>3</sup>	None
Hydrogen sulfide (H <sub>2</sub> S)	7783-06-4	OSHA  ACGIH ACGIH	PEL- Ceiling (C) 20ppm <sup>A</sup>  TLV-TWA 1 ppm TLV-STEL 5 ppm	Peak 50ppm/10 minutes
Dimethyl sulfide –DMS (C <sub>2</sub> H <sub>6</sub> S)	75-18-3	OSHA ACGIH	None TLV-TWA 10 ppm	None
Methyl Mercaptan – MM (CH <sub>4</sub> S)	74-93-1	OSHA  ACGIH	Ceiling (C) 10 ppm  TLV-TWA 0.5 ppm	None
Dimethyl disulfide –DMDS (C <sub>2</sub> H <sub>6</sub> S <sub>2</sub> )	624-92-0	OSHA ACGIH	None TLV –TWA 0.5 ppm	None (Skin) <sup>B</sup>

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## 8. Exposure Control Measures/Personal Protection (cont'd.)

<sup>A</sup> If instantaneous monitoring is not feasible, then the ceiling shall be assessed as a 15-minute time weighted average exposure which shall not be exceeded at any time during the working day.

<sup>B</sup> Potential significant contribution to overall exposure by the cutaneous route.

### Personal Protective Equipment:

**RESPIRATORY PROTECTION** – If TRS gas levels are below the respective allowable levels for the specific gas present, an air-purifying respirator may be used, assuming the filter cartridge/canister is appropriate for TRS gases. A full facepiece respirator will prevent eye irritation. If a halfmask respirator is used, tight fitting goggles must also be used. If air concentrations exceed recommended levels (or unknown concentrations) at least a supplied-air respirator with full-face piece, operated in pressure demand mode in combination with separate escape supply is recommended. Eye irritation may become a serious issue at elevated levels. Use respiratory protection in accordance with regulatory requirements such as the OSHA respiratory protection standard 29 CFR 1910.134 following a determination of exposure risks.

**PROTECTIVE GLOVES** – Use impervious butyl or neoprene gloves when handling product.

**EYE PROTECTION** – Wear chemical goggles and face shield if splash hazard is possible.

**OTHER PROTECTIVE CLOTHING OR EQUIPMENT** – Work clothing sufficient to prevent all skin contact should be worn, such as apron/lab coat and rubber boots if conditions warrant their use .

**WORK/HYGIENE PRACTICES** – Eyewash stations and safety showers should be readily accessible where there is the possibility for splash hazards. Avoid all contact with skin and eyes. Follow good hygienic and housekeeping practices.

Ventilation:

**LOCAL EXHAUST** – Provide local exhaust as needed.

**MECHANICAL (GENERAL)** – Provide general ventilation in processing and storage areas as needed.

**SPECIAL** – TRS gases, depending on their concentration, may form explosive mixtures in air streams.

Ensure ventilation system design considers explosivity potential.

**OTHER** – Not applicable.

## 9. Physical/Chemical Properties

**Physical Description/Odor:** Black or dark brown liquid with a characteristic rotten egg odor.

**Auto-ignition temperature:** Not available

**Boiling Point (@ 760 mm Hg):** Variable

**Decomposition temperature:** Not available

**Evaporation Rate (Butyl Acetate = 1):** Not available

**Freezing Point:** Not available

**Melting Point:** Not available

**Flammability:** Not available

**Flash Point:** Not available

**Evaporation Rate:** Not available

**Partition Coefficient (n-octonal/water):** Not available

**Odor Threshold:** Not available

**pH:** 11-13

**Solubility in Water (% by weight):** 100%

**Specific Gravity (H<sub>2</sub>O = 1):** 1.02-1.60

**Upper/Lower Explosive Limits:** Not available

**Vapor Density (air = 1; 1 atm):** Not available

**Relative Density:** Not available

## 9. Physical Chemical Properties (cont'd.)

Vapor Pressure (mm Hg):	Not available
Viscosity:	Not available
% Volatile by Volume [@ 70°F (21°C)]:	Not available

## 10. Stability and Reactivity

**Stability:**  Unstable  Stable

**Conditions to Avoid:** Do not wash to acid sewer.

**Incompatibility (Materials to Avoid):** Avoid strong oxidizing agents and strong acids. Zinc and aluminum should also be avoided. Reactions may produce exothermic reaction releasing hydrogen sulfide gas and other total reduced sulfur gases.

**Hazardous Decomposition or By-Products:** Combustion products include carbon monoxide, carbon dioxide and fine particulate in the form of smoke. Decomposition may produce hydrogen sulfide gas and other total reduced sulfur gases.

**Hazardous Polymerization:**  May occur  Will not occur

**Sensitivity to Mechanical Impact:** Not applicable

**Sensitivity to Static Discharge:** Not applicable

## 11. Toxicological Information

**Acute toxicity:** No information available for product as a mixture. Individual component information is listed below.

### Components:

**Sodium hydroxide:** Sodium hydroxide has been extensively studied in animals because of its ability to cause severe injury to the skin and eyes. Effects range from mild irritation to severe tissue damage and death, depending on its physical state (solid or solution), concentration, and exposure duration. LDLo (oral, rabbit) = 500 mg/kg. standard draize test (skin, rabbit) = 500mg/24H – Severe. Standard draize test (eye, rabbit) = 1mg/24H – Severe.

**Sodium carbonate:** LD<sub>50</sub> (oral, mouse) = 2050 mg/kg - changes in motor activity noted. LD<sub>50</sub> (rat, ingestion) = 4,090 mg/kg. LC<sub>50</sub> (rat, inhalation) = 2,100 - 2,500 mg/m<sup>3</sup> for 2 hours.

**Sodium sulfide:** LD<sub>50</sub> (oral rat) = 208mg/kg. Rabbit corrosive (eyes).

**Sodium sulfate:** LD<sub>50</sub> (mouse, ingestion) = 5,989 mg/kg.

**H<sub>2</sub>S:** LC<sub>50</sub> (rat, inhalation) = 444 ppm/4 hours; LC<sub>50</sub> (mouse, inhalation) = 673 ppm/1 hour; LC<sub>50</sub> (rat and mouse) = 1,000 ppm/15-30 minutes.

**MM:** LC<sub>50</sub> (rat, inhalation) = 675 ppm/4 hours; LC<sub>50</sub> (mouse, inhalation) = 1,664 ppm/unknown exposure duration; acute (rat, inhalation) = 500 ppm/30-35 minutes produced no effect; 700 ppm/30-35 minutes produced inactivity with instant recovery after exposure ended; 1,500 ppm/unknown exposure duration resulted in reflex loss and damage to lungs and airways; 10,000 ppm/1 minute produced convulsions, paralysis, and death occurred within 14 minutes.

**DMS:** LC<sub>50</sub> (rat, inhalation) = 40,250 ppm/unknown exposure duration; LC<sub>50</sub> (mouse, inhalation) = 31,620 ug/m<sup>3</sup>/unknown exposure duration; Irritation, 250µg 24 Hours (eye-rabbit) – Severe

**DMDS:** LC<sub>50</sub> (rat, inhalation) = 805 ppm/4 hours; LC<sub>50</sub> (rat, inhalation) = 15.85 mg/m<sup>3</sup>/2 hours

LC<sub>50</sub> (mouse, inhalation) = 12.3 mg/m<sup>3</sup>/2 hours; sub chronic (rat, inhalation): 100 ppm/6 hours/day/5 days/week/4 weeks resulted in no toxicity.

**Target Organs:** Eyes, skin and respiratory system.

### Carcinogenicity:

IARC: Listed by IARC - No

NTP: Listed by NTP - No

OSHA: Listed by OSHA – No

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## 11. Toxicological Information (cont'd.)

**Aspiration Hazard:** May potentially be an aspiration hazard resulting in burns and chemical pneumonia but determinations have not been made.

**Reproductive effects:** No information available.

**Teratogenic effects:** No information available.

**Mutagenic effects:** No information available.

**Effects:**

Acute Health Hazards: Acute Symptoms/Effects –Liquid is irritating and cause chemical and/or thermal burns to the skin and eyes. Liquid may be toxic if swallowed or in contact with the skin.

Chronic Health Hazards: May cause chronic dermatitis.

## 12. Ecological Information

**Environmental Fate:** Sodium hydroxide is highly soluble in water and raises the pH of the solution.

Sodium carbonate is highly soluble in water and has no impacts of concern. Sodium sulfate is highly soluble in water, and sulfate has a laxative effect above 350 mg/L. Sulfide is highly soluble in water and will partition to the atmosphere as H<sub>2</sub>S at pH 6-8. Dissolved sulfide is also readily bio oxidized in aerobic conditions.

**Ecotoxicity:**

Spent Pulping Liquor: Fish: 96 HR LC<sub>50</sub> >1000 µg/L.

Sodium hydroxide: Highly toxic to aquatic life. Bluegill: 96 HR LC<sub>50</sub> 240 µg/L.

Sodium carbonate: Daphnia Magna: 96 HR LC<sub>50</sub> 265-565 mg/L. Bluegill: 96 HR LC<sub>50</sub> 300-320 mg/L.

Sodium sulfate: Daphnia Magna: 96 HR LC<sub>50</sub> 4547 mg/L. Bluegill: 96 HR LC<sub>50</sub> 12500-13500 mg/L.

Mosquito Fish: 96 HR LC<sub>50</sub> 17500 mg/L.

Hydrogen sulfide: Very toxic to aquatic life- category 1, based on 96-hour LC<sub>50</sub>=0.0071mg/L of fishes (Fathead minnows).

Methyl mercaptan: 500µg/L 5 hours (mortality) spotfin shiner. Di methyl sulfide; 48 hour EC<sub>50</sub> Daphnia pulex: 23 mg/L.

**Biopersistence and Degradability:** Major components are biodegradable - leaches rapidly into soil. As noted Black Liquor has high sulfide content - about 1% of the dry liquor solids. While the sulfide gas concentrations are very low at the normal pH levels of these liquors, rapid release of H<sub>2</sub>S and MM can occur if the liquor is released to the environment or exposed to acids in process sewers or other operating areas. Turbulence will accelerate the release rate. In natural waters H<sub>2</sub>S is rapidly biodegraded, and the other TRS components are slowly biodegradable. The wood-based organics are biodegradable in water, but even weak liquor can exert very large demand on available dissolved oxygen and buffering. Thus, Black Liquor can threaten most aerobic organisms until significantly diluted or degraded.

**Bioaccumulation:** No information available.

**Soil Mobility:** No information available.

**Other Adverse Effects:** N/A

## 13. Disposal Considerations

**Waste Disposal Method:** CAUTION- Do not divert to an acid sewer. Do not dispose of this material into the sewer, ground or body of water unless dilution and disposal is permitted. Re-use uncontaminated material if possible; otherwise dispose of at a disposal site capable of accepting chemical waste in accordance with federal, state, and local and provincial environmental regulations where applicable. Do not incinerate sealed containers.

## 14. Transport Information

**Mode:** (Air, Land, water) Samples of black liquor should be submitted to an authorized laboratory to determine if they meet the DOT and TDG definition of a corrosive material. If testing indicates that the sample is defined as being corrosive then the following label may apply:

Proper Shipping Name: Caustic Alkali liquids, n.o.s. (Sodium hydroxide and sodium sulfide)  
Hazard Class: 8  
UN/NA ID Number: UN1719  
Packing Group: II, III\*  
Label/Placard Required: CORROSIVE

\*The selection of packing group II or III depends on corrosivity test results. See 49 CFR 173.137. Not regulated for shipment if specifications for corrosivity are not met.

## 15. Regulatory Information

**TSCA:** All ingredients are on the TSCA Inventory.

**CERCLA:** The CERCLA reportable quantity (RQ) for sodium hydroxide is 1000 lbs. (454 kg.). The CERCLA RQ for hydrogen sulfide is 100 lbs. (45.3 kg). The CERCLA RQ for methyl mercaptan is 100 lbs (45.3 kg).

**DSL:** All ingredients are on the Canadian Domestic Substance List Inventory.

**OSHA:** This product would be a regulated hazard under the OSHA Hazard Communication Standard (29 CFR 1910.1200) as a hazardous chemical.

### STATE RIGHT-TO-KNOW:

California – This product does not contain substances identified on the California Proposition 65 list.

New Jersey – Sodium hydroxide, sodium sulfide, hydrogen sulfide, methyl mercaptan, dimethyl sulfide, and dimethyl disulfide are listed on New Jersey Hazardous Substance Fact Sheets.

Pennsylvania – Sodium hydroxide, sodium sulfate, hydrogen sulfide, methyl mercaptan, dimethyl sulfide, and dimethyl disulfide are listed on the Pennsylvania Worker and Community Right-to-Know Hazardous Substance List.

**SARA 313 Information:** TRS gases include hydrogen sulfide and methyl mercaptan at levels that may exceed the threshold reporting levels established by SARA Title III, section 313 and 40 CFR section 372.

**SARA 311/312 Hazard Category:** This product has been reviewed according the EPA "Hazard Categories: promulgated under SARA Title III, Sections 311 and 312 and is considered, under applicable definitions, to meet the following categories:

An immediate (acute) health hazard	Yes
A delayed (chronic) health hazard	No
A fire hazard	No
A reactivity hazard	No
A sudden release hazard	No

## 16. Additional Information

**Date Prepared:** 05/26/2015

**Date Revised:** 06/29/2015

**Prepared By:** WestRock Safety and Health Department.

**WestRock SDS available on:** [www.westrock.com](http://www.westrock.com)

### Disclaimer:

The information and data herein are believed to be accurate and have been compiled by WestRock Safety and Occupational Health professionals from external sources believed to be reliable. WestRock provides

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## 16. Additional Information (cont'd.)

the information contained herein in good faith but makes no representation as to its comprehensiveness or accuracy. This document is intended only as a guide to the appropriate precautionary handling of the material by a properly trained person using this product. Individuals receiving the information must exercise their independent judgment in determining its appropriateness for a particular purpose and use in compliance with all applicable laws and standards. WestRock will not be liable for claims relating to any party's use of or reliance on information and data contained herein.

### Definition of Common Terms:

ACGIH	= American Conference of Governmental Industrial Hygienists
C	= Ceiling Limit
CAS#	= Chemical Abstracts System Number
CERCLA	= Comprehensive Environmental Response, Compensation, and Liability Act
DOT	= U. S. Department of Transportation
DSL	= Canada-Domestic Substance List
EC50	= Effective concentration that inhibits the endpoint to 50% of control population
EC#	= European Commission Number
ENCS	= Japanese Existing and New Chemical Substances List
EPA	= U.S. Environmental Protection Agency
IARC	= International Agency for Research on Cancer
IATA	= International Air Transport Association
IMDG	= International Maritime Dangerous Goods
LC50	= Concentration in air resulting in death to 50% of experimental animals
LCLo	= Lowest concentration in air resulting in death
LD50	= Administered dose resulting in death to 50% of experimental animals
LDLo	= Lowest dose resulting in death
LEL	= Lower Explosive Limit
LFL	= Lower Flammable Limit
MSHA	= Mine Safety and Health Administration
N/A	= Not Applicable
NIOSH	= National Institute for Occupational Safety and Health
NFPA	= National Fire Protection Association
NPRI	= Canada- National Pollution Release Inventory
NTP	= National Toxicology Program
OSHA	= Occupational Safety and Health Administration
PEL	= Permissible Exposure Limit
PNOR	= Particulate Not Otherwise Regulated
PNOS	= Particulate Not Otherwise Stated
RCRA	= Resource Conservation and Recovery Act
REACH	= Registration, Evaluation, Authorisation and Restriction of Chemicals
STEL	= Short-Term Exposure Limit (15 minutes)
STP	= Standard Temperature and Pressure
TCLo	= Lowest concentration in air resulting in a toxic effect
TDG	= Canadian Transportation of Dangerous Goods
TDLo	= Lowest dose resulting in a toxic effect
TLV	= Threshold Limit Value
TSCA	= Toxic Substance Control Act
TWA	= Time-Weighted Average (8 hours)
UFL	= Upper Flammable Limit
WHMIS	= Canada-Workplace Hazardous Materials Information System

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## Black Liquor

CAS # 66071-92-9

TRADE NAME (AS LABELED): Black Liquor, Spent Pulping Liquor



## Danger

Toxic If Swallowed, Causes Serious Burns to the Eyes and Skin. May Cause Damage to the Respiratory System. May cause an allergic skin reaction.

**PRECAUTIONS:** Wear gloves, clothing, eye, face and respiratory protection. Avoid breathing mist or vapors. Use only outdoors or in a well-ventilated area. Contaminated clothing should not be taken out of the workplace. Avoid release to the environment.

**FIRST-AID/RESPONSE:** 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 swallowed, rinse mouth. If swallowed or inhaled immediately call a poison center or doctor/physician and remove victim to fresh air and keep at rest in a position comfortable for breathing. Take off immediately all contaminated clothing. Rinse skin with water/shower, continue rinsing. Wash contaminated clothing before reuse. If skin irritation or rash occurs, get medical advice/attention. Wash hands after handling.

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