

MATERIAL SAFETY DATA SHEET

BLACK LIQUOR

**1. PRODUCT AND COMPANY IDENTIFICATION**



KAPSTONE CHARLESTON KRAFT LLC  
P. O. BOX 118005  
CHARLESTON, SC 29423-8005  
843-745-3257

5600 VIRGINIA AVENUE  
NORTH CHARLESTON, SC 29406  
843-745-3000

EMERGENCY TELEPHONE NUMBER (CHEMTREC):  
1-800-424-9300 (NORTH AMERICA)  
1-703-527-3887 (INTERNATIONAL)

SUBSTANCE: BLACK LIQUOR

TRADE NAMES/SYNONYMS: SPENT KRAFT PULPING LIQUOR

PRODUCT USE: DIGESTING CHIPS IN THE KRAFT PULPING PROCESS

DATE PREPARED: NOV 20 2000

REVISION DATE: SEP 4 2008

**2. COMPOSITION/INFORMATION ON INGREDIENTS**



COMPONENT: SPENT PULPING LIQUORS (BLACK LIQUOR)  
CAS NUMBER: 66071-92-9  
PERCENTAGE: <100

COMPONENT: ORGANIC COMPONENTS  
CAS NUMBER: NOT ASSIGNED.  
PERCENTAGE: 50-60

COMPONENT: SODIUM CARBONATE  
CAS NUMBER: 497-19-8  
PERCENTAGE: 4-8

COMPONENT: SODIUM HYDROXIDE  
CAS NUMBER: 1310-73-2  
PERCENTAGE: 3-6

COMPONENT: SODIUM SULFIDE, ANHYDROUS  
CAS NUMBER: 1313-82-2  
PERCENTAGE: 2-6

COMPONENT: SODIUM SULFATE  
CAS NUMBER: 7757-82-6  
PERCENTAGE: 2-6

COMPONENT: SODIUM THIOSULFATE  
CAS NUMBER: 7772-98-7  
PERCENTAGE: 2-6

COMPONENT: SODIUM CHLORIDE  
CAS NUMBER: 7647-14-5  
PERCENTAGE: 2-6

### 3. HAZARDS IDENTIFICATION



NFPA RATINGS (SCALE 0-4):  
HEALTH 3  
FIRE 1  
REACTIVITY 0

EMERGENCY OVERVIEW:

COLOR: BROWN TO BLACK

PHYSICAL FORM: LIQUID

ODOR: ROTTEN EGG ODOR

MAJOR HEALTH HAZARDS:

LIQUOR MAY BE HARMFUL IF INHALED OF SWALLOWED; MAY CAUSE RESPIRATORY TRACT BURNS, SKIN BURNS, EYE BURNS, MUCOUS MEMBRANE BURNS.

POTENTIAL HEALTH EFFECTS:

INHALATION:

SHORT TERM EXPOSURE:

LIQUOR MAY CAUSE:

UPPER RESPIRATORY TRACT IRRITATION, BURNS, ALLERGIC REACTIONS.

LONG TERM EXPOSURE: SAME AS EFFECTS REPORTED IN SHORT TERM EXPOSURE.

SKIN CONTACT:

SHORT TERM EXPOSURE:

LIQUOR MAY CAUSE: IRRITATION, REDDENING, BURNS, ALLERGIC REACTIONS.

LONG TERM EXPOSURE: SAME AS EFFECTS REPORTED IN SHORT TERM EXPOSURE.

EYE CONTACT:

SHORT TERM EXPOSURE:

LIQUOR MAY CAUSE: BURNS, BLINDNESS

LONG TERM EXPOSURE: SAME AS EFFECTS REPORTED TO SHORT TERM EXPOSURE.

INGESTION:

SHORT TERM EXPOSURE:

LIQUOR MAY CAUSE: BURNS

LONG TERM EXPOSURE: SAME AS EFFECTS REPORTED IN SHORT TERM EXPOSURE.

CONTACT WITH ACIDS MAY RELEASE POTENTIALLY DEADLY CONCENTRATIONS OF HYDROGEN SULFIDE.

### 4. FIRST AID MEASURES



INHALATION:

IF ADVERSE EFFECTS OCCUR, REMOVE TO UNCONTAMINATED AREA. GIVE ARTIFICIAL

RESPIRATION IF NOT BREATHING. IF BREATHING IS DIFFICULT, OXYGEN SHOULD BE ADMINISTERED BY QUALIFIED PERSONNEL. GET IMMEDIATE MEDICAL ATTENTION.

**SKIN CONTACT:**

WASH SKIN WITH SOAP AND WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. GET IMMEDIATE ATTENTION. THOROUGHLY CLEAN AND DRY CONTAMINATED CLOTHING AND SHOES BEFORE REUSE. DESTROY CONTAMINATED SHOES.

**EYE CONTACT:**

IMMEDIATELY FLUSH EYES WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES. THEN GET IMMEDIATE MEDICAL ATTENTION.

**INGESTION:**

IF SWALLOWED, DRINK PLENTY OF WATER, DO NOT INDUCE VOMITING. GET IMMEDIATE MEDICAL ATTENTION.

**NOTE TO PHYSICIAN:**

FOR INHALATION, CONSIDER OXYGEN. AVOID GASTRIC LAVAGE OR EMESIS.

## **5. FIRE FIGHTING MEASURES**



FIRE AND EXPLOSION HAZARDS: SLIGHT FIRE HAZARD.

**EXTINGUISHING MEDIA:**

CARBON DIOXIDE, REGULAR DRY CHEMICAL, REGULAR FOAM, WATER

**FIRE FIGHTING:**

MOVE CONTAINER FROM FIRE AREA IF IT CAN BE DONE WITHOUT RISK. COOL CONTAINERS WITH WATER SPRAY UNTIL WELL AFTER THE FIRE IS OUT. FLOOD WITH FINE WATER SPRAY. AVOID INHALATION OF MATERIAL OR COMBUSTION BY-PRODUCTS. STAY UPWIND AND KEEP OUT OF LOW AREAS.

FLASH POINT: NOT FLAMMABLE

## **6. ACCIDENTAL RELEASE MEASURES**



**OCCUPATIONAL RELEASE:**

DO NOT TOUCH SPILLED MATERIAL. STOP LEAK IF POSSIBLE WITHOUT PERSONAL RISK. REDUCE VAPORS WITH WATER SPRAY. DO NOT NEUTRALIZE WITH ACID. NEVER DIVERT SPILL INTO AN ACID-CONTAINING SEWER.

**SMALL SPILLS:**

ABSORB WITH SAND OR OTHER NON-COMBUSTIBLE MATERIAL. COLLECT SPILLED MATERIAL IN APPROPRIATE CONTAINER FOR DISPOSAL. KEEP UNNECESSARY PEOPLE AWAY, ISOLATE HAZARD AREA, VENTILATE AND DENY ENTRY. NOTIFY LOCAL EMERGENCY PLANNING COMMITTEE AND STATE EMERGENCY RESPONSE COMMISSION FOR RELEASE GREATER THAN OR EQUAL TO RQ (U.S. SARA SECTION 304). IF RELEASE OCCURS IN THE U.S. AND IS REPORTABLE UNDER CERCLA SECTION 103, NOTIFY THE NATIONAL RESPONSE CENTER AT (800) 424-8802 (USA) OR (202) 426-2675 (USA).

## **7. HANDLING AND STORAGE**



**STORAGE:**

STORE AND HANDLE IN ACCORDANCE WITH ALL CURRENT REGULATIONS AND STANDARDS.

STORE WITH BASES. SEE ORIGINAL CONTAINER FOR STORAGE RECOMMENDATIONS.

**HANDLING:**

HANDLE AS A CORROSIVE LIQUID. WHEN MIXING, SLOWLY ADD TO WATER TO MINIMIZE HEAT GENERATION AND SPATTERING. KEEP EMERGENCY SPILL KIT NEAR STORAGE AND USE AREAS. VESSELS WHICH HAVE CONTAINED BLACK LIQUOR SHOULD BE TESTED FOR THE PRESENCE OF HYDROGEN SULFIDE BEFORE ENTERING.

**8. EXPOSURE CONTROLS/PERSONAL PROTECTION**



**EXPOSURE LIMITS:**

**SODIUM HYDROXIDE:**

2 MG/M3 OSHA TWA  
2 MG/M3 OSHA CEILING (VACATED BY 58 FR 35338, JUNE 30, 1993)  
2 MG/M3 ACGIH CEILING

**VENTILATION:**

PROVIDE LOCAL EXHAUST OR PROCESS ENCLOSURE VENTILATION SYSTEM. ENSURE COMPLIANCE WITH APPLICABLE EXPOSURE LIMITS.

**EYE PROTECTION:**

WHERE SPLASH POTENTIAL EXISTS, WEAR SPLASH RESISTANT SAFETY GOGGLES WITH A FACESHIELD. PROVIDE AN EMERGENCY EYE WASH FOUNTAIN AND QUICK DRENCH SHOWER IN IMMEDIATE WORK AREA.

**CLOTHING:** WEAR APPROPRIATE CHEMICAL RESISTANT CLOTHING.

**GLOVES:** WEAR APPROPRIATE CHEMICAL RESISTANT GLOVES.

**PROTECTIVE MATERIAL TYPES:** NEOPRENE, NITRILE, POLYVINYL CHLORIDE (PVC)

**RESPIRATOR:**

RESPIRATORS SHOULD BE SELECTED BY AND USED UNDER THE DIRECTION OF A TRAINED HEALTH AND SAFETY PROFESSIONAL, FOLLOWING REQUIREMENTS FOUND IN OSHA'S RESPIRATOR STANDARD (29 CFR 1910.134).

**9. PHYSICAL AND CHEMICAL PROPERTIES**



**PHYSICAL STATE:** LIQUID

**COLOR:** BROWN TO BLACK

**ODOR:** ROTTEN EGG ODOR

**BOILING POINT:** VARIES

**FREEZING POINT:** NA

**VAPOR PRESSURE:** NA

**VAPOR DENSITY:** NA

**SPECIFIC GRAVITY (WATER=1):** VARIES

**WATER SOLUBILITY:** SOLUBLE

**pH:** 12-14

VOLATILITY: NA

ODOR THRESHOLD: NA

EVAPORATION RATE: NA

COEFFICIENT OF WATER/OIL DISTRIBUTION: NA

SOLVENT SOLUBILITY: SOLUBLE IN METHANOL

## 10. STABILITY AND REACTIVITY



REACTIVITY: STABLE AT NORMAL TEMPERATURES AND PRESSURE.

CONDITIONS TO AVOID:

AVOID HEAT, FLAMES, SPARKS AND OTHER SOURCES OF IGNITION. MAY IGNITE OR EXPLODE ON CONTACT WITH COMBUSTIBLE MATERIALS. CONTACT WITH ACIDS MAY RELEASE POTENTIALLY DEADLY CONCENTRATIONS OF HYDROGEN SULFIDE GAS.

INCOMPATIBILITIES: ACIDS, METALS, OXIDIZING MATERIALS

HAZARDOUS DECOMPOSITION:

THERMAL DECOMPOSITION PRODUCTS OF CONTACT WITH ACIDS:  
HYDROGEN SULFIDE, OXIDES OF CARBON.

HAZARDOUS POLYMERIZATION: WILL NOT POLYMERIZE.

## 11. TOXICOLOGICAL INFORMATION



BLACK LIQUOR:

LOCAL EFFECTS:

CORROSIVE: INHALATION, SKIN, EYE, INGESTION

SODIUM CARBONATE:

IRRITATION DATA:

500 MG/24 HOUR(S) SKIN-RABBIT MILD  
100 MG/24 HOUR(S) EYES-RABBIT MODERATE  
100 MG/30 SECOND(S) RINSED EYES-RABBIT MILD  
50 MG EYES-RABBIT SEVERE

TOXICITY DATA:

2300 MG/M3/2 HOUR(S) INHALATION-RAT LC50  
4090 MG/KG ORAL-RAT LD50

LOCAL EFFECTS:

IRRITANT: INHALATION, SKIN, EYE  
CORROSIVE: INGESTION

ACUTE TOXICITY LEVEL:

TOXIC: INHALATION  
MODERATELY TOXIC: INGESTION  
REPRODUCTIVE EFFECTS DATA: AVAILABLE (SEE RTECS DATA)

SODIUM HYDROXIDE:

IRRITATION DATA:

1 PERCENT/24 HOUR(S) EYES-MONKEY SEVERE  
500 MG/24 HOUR(S) SKIN-RABBIT SEVERE  
400 (MICRO)G EYES-RABBIT MILD  
1 PERCENT EYES-RABBIT SEVERE  
50 (MICRO)G/24 HOURS EYES-RABBIT SEVERE  
2 PERCENT/24 HOUR(S) SKIN-HUMAN MILD

TOXICITY DATA:

1350 MG/KG SKIN-RABBIT LD50  
104-340 MG/KG ORAL RAT LD50

LOCAL EFFECTS:

CORROSIVE: INHALATION, SKIN, EYE, INGESTION

ACUTE TOXICITY LEVEL:

TOXIC: INGESTION  
MODERATELY TOXIC: DERMAL ABSORPTION

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

EYE DISORDERS, SKIN DISORDERS AND ALLERGIES

MUTAGENIC DATA: AVAILABLE (SEE RTECS DATA).

SODIUM SULFIDE, ANHYDROUS:

TOXICITY DATA:

<340 MG/KG SKIN-RABBIT LD50 (8EHQ-0282-0435)  
208 MG/KG ORAL-RAT LD50

LOCAL EFFECTS:

CORROSIVE: SKIN, EYE, INDIGESTION

ACUTE TOXICITY LEVEL:

TOXIC: INGESTION  
ADDITIONAL DATA: SODIUM SULFIDE PRODUCES HYDROGEN SULFIDE.

SODIUM SULFATE:

TOXICITY DATA: 5989 MG/KG ORAL-MOUSE LD50

ACUTE TOXICITY LEVEL:

SLIGHTLY TOXIC: INGESTION  
TUMORIGENIC DATA: AVAILABLE (SEE RTECS DATA).  
REPRODUCTIVE EFFECTS DATA: AVAILABLE (SEE RTECS DATA).

SODIUM THIOSULFATE:

TOXICITY DATA: >5000 MG/KG ORAL-RAT LD50  
MUTAGENIC DATA: AVAILABLE (SEE RTECS DATA).

SODIUM CHLORIDE:

IRRITATION DATA:

50 MG/24 HOUR(S) SKIN-RABBIT MILD  
500 MG/24 HOUR(S) SKIN-RABBIT MILD  
100 MG EYES-RABBIT MILD  
100 MG/24 HOUR(S) EYES-RABBIT MODERATE  
10 MG EYES-RABBIT MODERATE

TOXICITY DATA:

>42 GM/M3/1 HOUR(S) INHALATION-RAT LC50  
10 GM/KG SKIN-RABBIT LD50  
3000 MG/KG ORAL-RAT LD50

LOCAL EFFECTS:  
IRRITANT: EYE

ACUTE TOXICITY LEVEL:  
MODERATELY TOXIC: INGESTION  
MUTAGENIC DATA: AVAILABLE (SEE RTECS DATA).  
REPRODUCTIVE EFFECTS DATA: AVAILABLE (SEE RTECS DATA).

## 12. ECOLOGICAL INFORMATION



BLACK LIQUOR:

ENVIRONMENTAL STABILITY:  
MATERIAL WILL RAPIDLY DISSOLVE IN WATER CAUSING STRONGLY CAUSTIC REACTIONS.  
RENDER LESS CAUSTIC BY DILUTING WITH WATER OR ABSORBING WITH APPROPRIATE  
ABSORBANT MATERIALS.

EFFECT OF MATERIAL ON PLANTS OR ANIMALS: STRONGLY CAUSTIC, MAY BE CORROSIVE.

EFFECT OF CHEMICAL ON AQUATIC LIFE:  
BLACK LIQUOR WILL RAPIDLY SHIFT pH OF AQUATIC ENVIRONMENT CAUSING LOCAL  
TOXIC EFFECTS. TOXICITY IS LESSENERED AS pH IS BUFFERED OR DILUTED.

## 13. DISPOSAL CONSIDERATIONS



DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS IF pH IS  $\geq 12.5$ .  
SUBJECT TO DISPOSAL REGULATIONS: U.S. EPA 40 CFR 262.

HAZARDOUS WASTE NUMBER(S): D002.

## 14. TRANSPORT INFORMATION



U.S. DOT 49 CFR 172.101:

ID NUMBER: UN1719

PROPER SHIPPING NAME:  
CAUSTIC ALKALI LIQUIDS, N.O.S. (SODIUM HYDROXIDE, SODIUM SULFIDE, ANHYDROUS)

HAZARD CLASS OR DIVISION: 8

PACKING GROUP: II

LABELING REQUIREMENTS: 8

## 15. REGULATORY INFORMATION



U.S. REGULATIONS:

CERCLA SECTIONS 102A/103 HAZARDOUS SUBSTANCES (40 CFR 302.4):  
SODIUM HYDROXIDE: 1000 LBS RQ

SARA TITLE III SECTION 302 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.30)

NOT REGULATED.

SARA TITLE III SECTION 304 EXTREMELY HAZARDOUS SUBSTANCES (40 CFR 355.40):  
NOT REGULATED

SARA TITLE III SARA SECTIONS 311/312 HAZARDOUS CATEGORIES (40 CFR 370.21):  
ACUTE: YES  
CHRONIC: NO  
FIRE: NO  
REACTIVE: NO  
SUDDEN RELEASE: NO

SARA TITLE III SECTION 313 (40 CFR 372.65): NOT REGULATED.

OSHA PROCESS SAFETY (29 CFR 1910.119): NOT REGULATED.

STATE REGULATIONS:  
CALIFORNIA PROPOSITION 65: NOT REGULATED.

NATIONAL INVENTORY STATUS:  
U.S. INVENTORY (TSCA): LISTED ON INVENTORY

TSCA 12(B) EXPORT NOTIFICATION: NOT LISTED.

## **16. OTHER INFORMATION**



THE INFORMATION SET FORTH HEREIN IS OFFERED AS A SERVICE TO KAPSTONE CHARLESTON KRAFT CUSTOMERS AND IS NOT INTENDED TO RELIEVE A CUSTOMER FROM ITS RESPONSIBILITY TO DETERMINE THE SUITABILITY OF THIS INFORMATION FOR THEIR PARTICULAR PURPOSES, TO COMPLY WITH ALL LAWS AND PROCEDURES REGARDING THE SAFE USE OF THESE MATERIALS, AND TO USE THESE MATERIALS IN A SAFE MANNER.