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 OR 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:

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
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, INDIGENCE

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 LESSENEO AS pH IS BUFFERED OR DILUTED.

13. DISPOSAL CONSIDERATIONS

DISPOSE OF IN ACCORDANCE WITH ALL APPLICABLE REGULATIONS IF pH IS >/=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.


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.