MATERIAL SAFETY DATA SHEET
MSDS P-109 REVISION 14

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

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PRODUCT:	Linear Alkylbenzenesulfonic Acid	DATE OF ISSUE: September 19, 2007
TRADE NAMES/SYNONYMS:	Dodecylbenzenesulfonic Acid - 97%	
CHEMICAL FAMILY:	Sulfonic acid	
TSCA NAME:	Benzenesulfonic acid, C10-C16 alkyl derivatives	
I.D. NUMBER:	961017, 818010	

SECTION 2: HAZARD IDENTIFICATION

EMERGENCY OVERVIEW

WARNING: This product is clear to hazy, dark, viscous liquid with a sulfur dioxide odor. Direct contact with eyes may cause irritation or burns. Ingestion may cause mucous membrane and circumoral burns, necrosis of the stomach, respiratory distress (secondary to epiglottal swelling), shock, renal failure, and death. Exposure with skin may cause severe irritation, pain and possibly chemical burns. Keep out of reach of children. No significant environmental effects. Not a fire hazard. Product is stable.

This product is labeled in accordance with regulations administered by the Consumer Product Safety Commission. The use pattern and exposure in the workplace are generally not consistent with those experienced by consumers. The requirements of the Occupational Safety and Health Administration applicable to this Material Safety Data Sheet differ from the requirements of the CPSC and as a result, this MSDS may contain additional health hazard information not pertinent to consumer use and not found on the product label.

REGULATORY STATUS

While this product is not considered to be hazardous under OSHA's Hazard Communication Standard (29 CFR 1900.1200), this MSDS includes valuable information that is critical for safe handling and proper use of this product. This MSDS should be retained and available for employees and other users of this product.

POTENTIAL HEALTH EFFECTS

NOTE: The acute health effects described below are those which could potentially occur for the finished product. They are based on the toxicology information available for the finished product and/or each hazardous ingredient, and are consistent with the product type and the likelihood of a specific route of exposure. Known chronic health effects related to exposure to a specific ingredient are indicated.

INHALATION:	Vapors may cause severe irritation with possible corrosive burns of the mucous membranes of the upper respiratory tract, conjunctivitis, nasal secretions, sneezing, a burning or tickling sensation in the nose and throat and retrosternal region, followed by cough, respiratory distress, tracheobronchitis, chemical pneumonitis and possible spasm of the vocal cords, and pulmonary edema.
SKIN CONTACT:	May cause severe irritation, pain and possibly chemical burns.
EYE CONTACT:	May cause burns with impairment or permanent loss of vision. Symptoms may include severe irritation, pain, tearing, blurred vision.
INGESTION:	May cause mucous membrane and circumoral burns, excess drooling, difficulty in swallowing, pain upon swallowing, vomiting of blood, abdominal pain, perforation of the esophagus and gastrointestinal tract, necrosis of the stomach, respiratory distress (secondary to epiglottal swelling), shock, renal failure, and death.

CHRONIC HEALTH EFFECTS: No chronic health effects are expected from the intended use of these chemicals or from foreseeable handling of them in the workplace. Nonetheless, the following effects have been reported for a component, sulfuric acid.

Sulfuric Acid: Repeated exposure to the mist may cause inflammation of the upper respiratory tract, chronic bronchitis and etching of the dental enamel. Repeated excessive exposure over long periods of time have resulted in bronchitic symptoms, rhinorrhea, frequent respiratory tract infections, emphysema, stomatitis and digestive disturbances. The NTP lists strong inorganic acid mists containing sulfuric acid as "known human carcinogens." Occupational exposures to strong inorganic acid mists containing sulfuric acid are specifically associated with laryngeal and lung cancers in humans.

MEDICAL CONDITIONS GENERALLY RECOGNIZED AS BEING AGGRAVATED BY EXPOSURE: Pre-existing skin conditions and respiratory illnesses (such as asthma).

POTENTIAL ENVIRONMENTAL EFFECTS

See Section 12: Ecological Information.

SECTION 3: COMPOSITION / INFORMATION ON INGREDIENTS

Based on our hazard evaluation, the following chemical substance(s) in this product have been identified as hazardous.

INGREDIENT	CAS NUMBER	PERCENT (w/w)
Dodecylbenzenesulfonic Acid	68584-22-5	60 – 100 %
Sulfuric Acid	7664-93-9	1 – 5 %

SECTION 4: FIRST AID MEASURES

INHALATION: Remove from exposure area to fresh air immediately. Keep affected person warm and at rest. Treat symptomatically and supportively. Contact physician or local poison control center. If breathing has stopped, give artificial respiration, and get medical attention immediately.

SKIN CONTACT: Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes. Get medical attention if irritation persists.

EYE CONTACT: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, and continue rinsing eye. Get medical attention if pain or irritation persists.

INGESTION: Treat symptomatically and supportively. Maintain airway and respiration. If vomiting occurs, keep head below hips to prevent aspiration. Dilution by rinsing the mouth and giving water or milk to drink is generally recommended. If unconscious, the victim should not be given anything to drink. Contact physician or local poison control center.

NOTE TO PHYSICIAN: The physician's judgement should be used to control symptoms and clinical condition based on the individual reactions of the patient.

SECTION 5: FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

OSHA FLAMMABILITY CLASSIFICATION: IIIB FLASH POINT: >200°F (>93°C)

UPPER FLAMMABILITY LIMIT: Not applicable LOWER FLAMMABILITY LIMIT: Not applicable

AUTO-IGNITION TEMPERATURE: Not applicable

FIRE AND EXPLOSION HAZARD: Slight fire hazard when exposed to heat or flame.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products may include toxic oxides of sulfur and carbon, and hydrogen sulfide.

EXTINGUISHING MEDIA

Dry chemical, carbon dioxide, water spray or regular foam. For larger fires, use water spray, fog or regular foam.

PROTECTION OF FIREFIGHTERS

In case of fire, wear a full face positive-pressure self contained breathing apparatus and protective suit. Move container from fire area if you can do it without risk. Apply cooling water to sides of containers that are exposed to flames until fire is out. Do not scatter spilled material with high-pressure water streams. Dike fire-control water for later disposal. Use agents suitable for type of surrounding fire. Avoid breathing hazardous vapors, keep upwind.

SECTION 6: ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS :
Ventilate spill area if possible. Do not touch spilled material. Stop or reduce any leaks if it is safe to do so. Use personal protective equipment recommended in Section 8. Notify appropriate government, occupational health and safety and environmental authorities. Keep unnecessary people away; isolate hazard area and restrict entry. Ensure clean-up is conducted by trained personnel only.

ENVIRONMENTAL PRECAUTIONS:
This product should not be directly discharged into lakes,streams, ponds, estuaries, oceans, public water supplies, or other waters. Do not contaminate surface or ground water by cleaning equipment or disposal of wastes, including equipment washwater.

METHODS FOR CONTAINMENT AND CLEAN UP:
SMALL SPILLS: Contain and absorb with sand or other absorbent material and place into clean, dry containers for later disposal. Wash site of spillage thoroughly with water. LARGE SPILLS: Dike far ahead of spill to prevent further movement. Recover by pumping or by using a suitable absorbent material and place into containers for later disposal. No smoking, flames or flares in hazard area.

SECTION 7: HANDLING AND STORAGE

HANDLING:
Do not get in eyes, on skin, on clothing. Do not take internally. Use with adequate ventilation. Avoid generating aerosols and mists. Keep the containers closed when not in use. Have emergency equipment (for fires, spills, leaks, etc.) readily available.

STORAGE:
Store in a cool, dry, ventilated area out of reach of children and away from sources of heat, moisture, and incompatible substances. Store in suitable labeled containers. Store the containers tightly closed.

SECTION 8: EXPOSURE CONTROLS / PERSONAL PROTECTION

WORKER EXPOSURE LIMITS
The following exposure limits exist for the ingredients listed below. The TLV-TWA is the ACGIH Threshold Limit Value – Time Weighted Average. TLV-Ceiling Limit is the ACGIH Threshold Limit Value – Ceiling Limit. PEL-TWA is the OSHA Permissible Exposure Limit.

INGREDIENT	CAS NUMBER	EXPOSURE LIMIT
Sulfuric Acid	7664-93-9	TLV-TWA: 0.2 mg/m3 TWA (thoracic fraction), PEL-TWA: 1 mg/m3 TWA

ENGINEERING CONTROLS: Provide local exhaust or general dilution ventilation to keep potential exposure to airborne contaminants as low as possible.

RESPIRATOR Air contamination monitoring should be carried out where generation of vapors or mists is likely to occur to assure that the employees are not exposed to harmful concentrations above the permissible exposure limits. If respiratory protection is required, it must be based on the contamination levels found in the workplace, must not exceed the working limits of the respirator and be jointly approved by the National Institute for Occupational Safety and Health and the Mine Safety and Health Administration (NIOSH-MSHA).

FOR FIRE FIGHTING AND OTHER IMMEDIATELY DANGEROUS TO LIFE OR HEALTH CONDITIONS: Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode. Any supplied-air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained breathing apparatus operated in pressure demand or other positive-pressure mode.

CLOTHING: Chemical-resistant clothing (impervious) is required to prevent any possibility of skin contact with this product.

GLOVES: Chemical-resistant gloves are required to prevent any possibility of skin contact with this product.

EYE/FACE PROTECTION: Splash-proof safety goggles and a faceshield are required to be worn to prevent any possibility of eye contact with this product.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Clear to hazy, dark, viscous liquid		
ODOR/ODOR THRESHOLD:	Sulfur dioxide odor	PHYSICAL STATE:	Liquid
pH (@ 25°C):	<1.0 (1% solution)	VAPOR DENSITY:	Not available
BOILING POINT:	>400 °F (>204 °C)	VAPOR PRESSURE:	Not available
MELTING/FREEZING POINT:	Not available	FLASH POINT:	See Section 5.
FLAMMABLE PROPERTIES:	See Section 5.	SOLUBILITY IN WATER:	Miscible
DENSITY/SPECIFIC GRAVITY:	1.04 @ 21°C	EVAPORATION RATE:	Not available
OCTANOL/WATER PARTITION COEFFICIENT (K_{ow}):	Not available		
VISCOSITY:	Not available	CLOUD POINT:	Not available

SECTION 10: STABILITY AND REACTIVITY

CHEMICAL STABILITY: Stable under normal ambient temperature (70°F, 21°C) and pressure (1 atm).

CONDITIONS TO AVOID: Avoid storing in direct sunlight and avoid extremes of temperature.

INCOMPATIBLE MATERIALS: Strong oxidizers, metals, acids, carbonates, sulfides, cyanides, water.

HAZARDOUS DECOMPOSITION PRODUCTS: Thermal decomposition products may include toxic oxides of sulfur and carbon, and hydrogen sulfide.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization has not been reported to occur under normal temperatures and pressures.

SECTION 11: TOXICOLOGICAL INFORMATION

PRODUCT INFORMATION SUMMARY: Direct contact with eyes may cause irritation or burns. Ingestion may cause mucous membrane and circumoral burns, necrosis of the stomach, respiratory distress (secondary to epiglottal swelling), shock, renal failure, and death. Exposure with skin may cause severe irritation, pain and possibly chemical burns. Keep out of reach of children.

COMPONENT ANALYSIS: The following toxicity information is for the hazardous ingredient(s) when used as technical grade and is provided as reference for the occupational settings.

PRODUCT / INGREDIENT	LD50 / DRAIZE SCORE	TOXICITY / IRRITATION RATING
ACUTE ORAL TOXICITY		
Dodecylbenzenesulfonic Acid	2,140 mg/kg (rat)	Moderately Toxic
Sulfuric Acid	2,140 mg/kg (rat)	Moderately Toxic
ACUTE INHALATION TOXICITY		
Dodecylbenzenesulfonic Acid	510 mg/m3/2H (rat)	Toxic
Sulfuric Acid	510 mg/m3/2H (rat)	Toxic

SENSITIZATION: This product is not considered a skin or respiratory sensitizer.

CARCINOGENICITY: None of the ingredients in this product are listed as carcinogens by the International Agency for Research on Cancer (IARC), the National Toxicology Program (NTP) or the Occupational Safety and Health Administration (OSHA).

MUTAGENICITY: None of the ingredients in this product are known to cause mutagenicity.

REPRODUCTIVE/FETAL/DEVELOPMENTAL TOXICITY: None of the ingredients in this product are known as reproductive, fetal, or developmental hazards.

TARGET ORGAN TOXICITY: None of the ingredients in this product are known to have target organ toxicity.

EPIDEMIOLOGICAL INFORMATION: None of the ingredients in this product are known to have health-related information in working populations.

SECTION 12: ECOLOGICAL INFORMATION

This product is anticipated to be safe for the environment at concentrations predicted in household settings under normal use conditions. The following toxicity information is available for the hazardous ingredient(s) when used as technical grade and is provided as reference for the occupational settings.

INGREDIENT	LC50/EC50 (ANIMAL SPECIE)	TOXICITY RATING
VERTEBRATES		
Sulfuric Acid	96 Hr LC50: > 500 mg/L (Brachydanio rerio)[static]	Harmful
INVERTEBRATES		
Sulfuric Acid	24 Hr EC50: 29 mg/L (Daphnia magna)	Harmful

ENVIRONMENTAL FATE: No environmental fate data exists for the product.

PERSISTENCE AND DEGRADABILITY: The persistence and degradability of this product has not been determined.

BIOACCUMULATION POTENTIAL: The bioaccumulation potential of this product has not been determined.

MOBILITY: The mobility of this product (in soil and water) has not been determined.

SECTION 13: DISPOSAL CONSIDERATIONS

WASTE NUMBER AND DESCRIPTION: D002

DISPOSAL CONSIDERATIONS: This product is a RCRA characteristic hazardous waste (corrosive) and must be disposed of in a RCRA Subtitle C landfill.

SECTION 14: TRANSPORT INFORMATION

GROUND TRANSPORT

DOT Hazard Class:	8 - Corrosive material
DOT Proper Shipping Name:	RQ, Alkyl sulfonic acids, liquid, 8, UN2586, PG III,
Packing Group:	PG III
Shipping Label Information:	8 Corrosive

AIR TRANSPORT (ICAO/IATA)		MARINE TRANSPORT (IMDG/IMO)
ICAO/IATA Hazard Class:	UN2586 PGIII	IMDG/IMO Hazard Class: 8 Corrosive UN2586 PGIII
ICAO/IATA Proper Shipping Name:	Alkyl sulfonic acid, Liquid	IMDG/IMO Proper Shipping Name: Alkylsulfonic acid

SECTION 15: REGULATORY INFORMATION

UNITED STATES:

OSHA HAZARD COMMUNICATION RULE, 29 CFR 1910.1200:
The Occupational Safety and Health Administration requires Material Safety Data Sheets to provide any hazards that may be associated with the product, and make this information available in the workplace. Since the use pattern and exposure in the workplace are generally not consistent with those experienced by consumers, this MSDS may contain additional health hazard information not pertinent to consumer use.

EPA - SARA TITLE III SECTION 313: Toxic chemical - Yes: sulfuric acid, aerosol forms only.

EPA CERCLA/SARA TITLE III SUPERFUND AMENDMENT AND REAUTHORIZATION ACT:
EPA - SARA TITLE III SECTIONS 302: 1000 lbs. TPQ. (sulfuric acid)
EPA - SARA TITLE III SECTIONS 304: 1000 lbs. RQ. (sulfuric acid)

TSCA: All components of this product are listed or are exempted or excluded from listing on the U.S. Toxic Substances Control Act (TSCA) chemical substance inventory.

STATE REGULATIONS
CALIFORNIA PROPOSITION 65: This product does not contain substances listed under California Proposition 65.

CANADA:

CANADIAN ENVIRONMENTAL PROTECTION ACT:
INVENTORY STATUS: All components of this product are listed on the Canadian Domestic Substances List (DSL).

WORKER HAZARDOUS MATERIALS INFORMATION SYSTEM:
WHMIS CLASSIFICATION: D2B

SECTION 16: OTHER INFORMATION

DISCLAIMER: The information contained herein is provided in good faith and is believed to be correct as of the date hereof. However, The Dial Corporation makes no representation as to the comprehensiveness or accuracy of the information. It is expected that individuals receiving the information will exercise their independent judgment in determining its appropriateness for a particular purpose. Accordingly, The Dial Corporation will not be responsible for damages of any kind resulting from the use of or reliance upon such information. No representations, or warranties, either expressed or implied of merchantability, fitness for a particular purpose or of any other nature is made hereunder with respect to the information set forth herein or to the product to which the information refers.

NFPA RATINGS (Scale 0-4, where 4=high degree of hazard):	HEALTH=3	FLAMMABILITY=1	REACTIVITY=1
HMIS RATINGS (Scale 0-4, where 4=severe hazard):	HEALTH=3	FLAMMABILITY=1	REACTIVITY=1

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