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MATERIAL SAFETY DATA SHEET

4-(p-Nitrophenylazo)RESORCINAL IN 2N SODIUM HYDROXIDE

Emergency Contact: William W. Gorman, Jr. Date: 09/15/88

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Substance Identification

CAS-Number 1310-73-2

Trade Names/Synonyms: Azo Violet Dye; Caustic Soda Solution; Lye Solution; Soda Lye; Sodium Hydroxide Solution; Sodium Hydroxide Liquid; White Caustic Solution

Chemical Family: Organic Dye in Inorganic Base
Molecular Formula: $4\text{-}(4\text{-}NO_2C_6H_4N{:}N)C_6H_3\text{-}1,3\text{-}(OH)$

Cercla Ratings (Scale 0-3): Health=3; Fire=0; Reactivity=1; Persistence=0

Components and Contaminants

Component: 4-(p-Nitrophenylazo)resorcinol
NaOH 8% $2mg/m^3$

Physical Data

Appearance and Odor: Violet liquid, water-like, slightly mild, pungent odor
Melting with Decomposition: 190°C (374°F)
Vapor Pressure: Negligible
Evaporation Rate: (n-butyl acetate=1): Negligible
Specific Gravity (H_2) = 1) 1.3
Solubility in Water (by Weight): Complete

Fire and Explosion Data

Fire and Explosion Hazard: Negligible fire hazard when exposed to heat or flame. However, contact with certaim metals results in the emission of flammable hydrogen gas.

Flash Point: Will not burn

Firefighting Media: Dry chemical, carbon dioxide, water spray or foam (1984 Emergency Response Guidebook, DOT P 5800.3).

For larges fires, use water spray, fog or alcohol foam (1984 Emergency Response Guidebook, DOT P 5800.3).

Firefighting: Wear personal protective equipment. Move containers from fire area if possible. Cool container exposed to flames with water from side until well after fire is out (1984 Emergency Response Guidebook, DOT P 5800.3). Avoid spattering or splashing this solution.

Use agent suitable for type of fire. Use flooding quantities of water as fog. Apply from as far a distance as possible. Avoid breathing corrosive vapors. Keep upwind (Bureau of Explosives, Emergency Handling of Hazardous Material in Surface Transportation, 1981).

Autoignition Temperature: 271°C (520°F) ASTM-D2155

Unusual Fire and Explosion Hazards: Fire or excessive heat may cause production of hazardous decomposition products.

Toxicity

Test	Species	Result	Classification
Acute Oral LD_{50}	Rat	400-3200 Mg/Kg	Slightly Toxic
Skin Absorption	Guinea Pig	No evidence of absorption at 0.5 g/kg, based on lack of mortality, body weight changes, and clinical signs	
Skin Irritation	Guinea Pig	Slight	

Sodium Hydroxide: 40 Mg/Kg Intraperitoneal-Mouse LD50; Mutagenic Data (RTECS); Carcinogen Status: None

Health Effects and First Aid

Inhalation: Corrosive. 200 Mg (NaOH)/M3 are immediately dangerous to life or health.

Acute Exposure-No inhalation effects are anticipated in the proposed (analytical) use of these solutions.

Chronic Exposure-Same response as to acute, stated above.

First Aid-Remove from exposure area to fresh air immediately. If breathing has stopped, give artificial respiration. If breathing is difficult, or if cyanotic (blue skin and lips), give oxygen. Keep affected person warm and at rest. Get medical attention as soon as possible.

Skin Contact: Corrosive

Acute Exposure-On the skin, solutions of 25 to 50% may cause the sensation of irritation within about three minutes. If not removed from the skin, severe burns with deep ulcerations rapidly occur.

Chronic Exposure-Repeated exposure may result in dermatitis.

First Aid-Remove contaminated clothing while running streams of water under clothing. Wash affected area with soap or mild detergent and large amounts of water (approximately 15-20 minutes) until no evidence of chemical remains. For chemical burns, apply sterile bandage securely, but not too tightly. Get immediate medical attention.

Eye Contact: Corrosive

Acute Exposure-Contact rapidly causes disintegration and sloughing of conjunctival and corneal epithelium, corneal opacification, marked edema and ulceration; after 7 to 13 days either gradual recovery begins or there is progression of ulceration and corneal opacification. Complications of severe eye burns are symblepharon with overgrowth of the cornea by a permanent corneal opacification.

Chronic Exposure-No reports found in the proposed (analytical) use of these solutions.

First Aid-Wash eyes immediately with large amounts of water, occasionally lifting the upper and lower lids, until no evidence of chemical remains (approximately 15-20 minutes). Get immediate medical attention.

Ingestion: Corrosive

Acute Exposure-Causes severe abdominal pain, corrosion of the lips, mouth, tongue and pharynx, and vomiting of large pieces of mucosa. Asphyxia can occur from swelling of the throat. Perforation of the esophagus and stomach may occur. Cases of squamous cell carcinoma of the esophagus have occurred with latent periods of 12 to 42 years after ingestion. These cancers were believed to be sequelae of tissue destruction and possibly scar formation rather than the result of direct carcinogenic action of sodium hydroxide.

First Aid-If victim is conscious, give large quantities of water immediately to dilute the alkali. Do not induce vomiting. Get medical attention immediately.

Reactivity

Reactivity: Stable at ordinary pressures up to the boiling point, 115°C.

Incompatibilities: Sodium Hydroxide
Acidic and Other Materials, Examples Follow:
Acetaldehyde: Results in violent polymerization of acetaldehyde.
Acetic Acid: Mixing in a closed container increases temperature and pressure.
Acetic Anhydride: Mixing in a closed container increases temperature and pressure.
Acrolein: Results in an extremely violent polymerization of acrolein.
Acrylonitrile: Violent polymerization takes place in the presence of NaOH.
Allyl Alcohol: As a benzene extract of allyl benzenesulfonate was prepared from allyl alcohol and benzene sulfonyl choloride in the presence of aqueous sodium hydroxide, under vacuum distillation, two fractions came off, then the temperature rose to 135°C, when the residue darkened and exploded.
Allyl Chloride: In contact with dry sodium hydroxide, hydrolysis may take place, producing allyl alcohol.
Aluminum: Vigorous reaction with the evolution of flammable hydrogen gas.
Chlorine Trifluoride: Violent reaction.
Chloroform and Methyl Alcohol: Exothermic reaction.
Chlorohydrin: Mixing in a closed container causes an increase in temperature and pressure.
Chloronitrotoluenes: Possible explosion.
Chlorosulfonic Acid, Cinnamaldeayde: Mixing in a closed container causes an increase in temperature and pressure.
1,2-Dichloroethylene: May form spontaneously flammable monochloroacetylene.
Ethylene Cyanohydrin, Glycols: Mixing in a closed container causes an increase in temperature and pressure.
Glyoxal: Mixing in a closed container increases temperature and pressure.
Halogenated Hydrocarbons: Violent reaction.
Hydrochloric Acid: Mixing in a closed container causes an increase in temperature and pressure.
Hydrofluoric Acid: Mixing in a closed container causes an increase in temperature and pressure.
Hydroquinone: Rapid decomposition of hydroquinone with evolution of heat.
Maleic Anhydride: Explosive decomposition.
Metals: Corrodes certain metals, reacting to form flammable hydrogen gas.
Nitric Acid: Mixing in a closed container increases temperature and pressure.
Nitroethane: Forms an explosive salt.
Nitromethane: Forms an explosive salt.

Nitroparaffins: The nitroparaffins, in the presence of water, form dry salts with organic bases. The dry salts are explosive.
Nitropropane: Forms an explosive salt.
Oleum: Mixing in a closed container causes an increase in temperature and pressure.
Pentol (3-Methyl-2-Penten-4-YN-1-OL): Possible explosion.
Phosphorus: Phosphorus boiled with alkaline hydroxides yields mixed phosphines which may ignite spontaneously in air.
Phosphorus Pentoxide: Extremely violent reaction when initiated by local heating.
B-Propiolactone, Reducing Sugars: Mixing in a closed container causes an increase in temperature and pressure.
Sulfuric Acid: Mixing in a closed container causes an increase in temperature and pressure.
Tetrachlorobenzene and Methyl Alcohol: Possible explosion.
Tetrahydrofuran: Serious explosions can occur.
Trichloroethylene, Zinc: Formation of explosive mixtures of dichloroacetylene.

Decomposition: Emits caustic mist at the boiling point, 115°C.

Polymerization: Will not occur.

Conditions to Avoid

Avoid contact with or storage with water, acids, and other incompatibilities. Flammable, poisonous gases may accumulate in tanks and hopper cars. Avoid heating to the boiling point, 115°C, where corrosive mist is emitted.

Spill and Leak Procedures

Occupational Spill: Keep incompatible materials away. Do no touch spilled material. Wear personal protective equipment. For small spills, take up with sand or other absorbent material and place into containers for later disposal. Close tightly and label 'corrosive'. Move containers from spill area. For larger spills, dike as close to spill as practical, to minimize environmental pollution. Pump into suitable containers. Close tightly, and label 'corrosive'. Keep unnecessary people away. Isolate hazard area and deny entry. Keep out of sewers, waterways and water sources.

Protective Equipment

Ventilation:

Caustic Mist: Provide general dilution ventilation to meet permissible exposure limit requirements.

Respirator: None required for the proposed (analytical) use of this chemical.

Clothing: Employee must wear appropriate protective clothing and equipment to prevent any possibility of skin contact with this solution.

Gloves: Employee must wear appropriate protective gloves to prevent any possibility of contact with this solution. Preferred materials: Natural, neoprene and nitrile rubber and PVC plastic.

Eye Protection: Employee must wear splash-proof safety goggles and a face-shield to prevent any possibility of contact with this solution. Do not wear contact lenses when working with chemicals.

Where there is any possibility that an employee's eyes may be exposed to this solution, the employer shall provide an eye-wash fountain within the immediate work area for emergency use.