Safety Data Sheet

Kovac Solution

CAROLINA®
www.carolina.com

Section 1 Product Description

Product Name:	Kovac Solution
Recommended Use:	Science education applications
Synonyms:	Kovac's Reagent
Distributor:	Carolina Biological Supply Company, 2700 York Road, Burlington, NC 27215-3398
Chemical Information:	800-227-1150 (8am-5pm (ET) M-F)
Chemtrec:	800-424-9300 (Transportation Spill Response 24 hours)

Section 2 Hazard Identification

Classification of the chemical in accordance with paragraph (d) of §1910.1200;

DANGER

Flammable liquid and vapor. Harmful if swallowed or if inhaled. Causes severe skin burns and eye damage. Causes serious eye damage.

GHS Classification:
Skin Corrosion/Irritation Category 1B, Serious Eye Damage/Eye Irritation Category 1, Flammable Liquid Category 3, Acute Toxicity - Inhalation Vapor Category 4, Acute Toxicity - Oral Category 4

Acute Toxicity Dermal Contains	20.12 % of the mixture consists of ingredient(s) of unknown toxicity
Acute Toxicity Inhalation Vapor Contains	20.072 % of the mixture consists of ingredient(s) of unknown toxicity
Acute Toxicity Inhalation Dust/Mist Contains	20.072 % of the mixture consists of ingredient(s) of unknown toxicity

Section 3 Composition / Information on Ingredients

Chemical Name	CAS #	%
1-Butanol	71-36-3	71
Water	7732-18-5	15.07
Hydrogen Chloride	7647-01-0	8.93
p-Dimethlaminobenzaldehyde	100-10-7	5

Section 4 First Aid Measures

Emergency and First Aid Procedures

Inhalation:	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
Eyes:	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Skin Contact:	IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Wash contaminated clothing before reuse.
Ingestion:	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell. IF SWALLOWED: rinse mouth. Do NOT induce vomiting.

Section 5 Firefighting Procedures

Extinguishing Media:	Use dry chemical, CO2 or appropriate foam.
Fire Fighting Methods and Protection:	Firefighters should wear full protective equipment and NIOSH approved self-contained breathing apparatus.
Fire and/or Explosion Hazards:	Fire or excessive heat may produce hazardous decomposition products.
Hazardous Combustion Products:	Carbon dioxide, Carbon monoxide, Hydrogen chloride

Section 6 Spill or Leak Procedures

Steps to Take in Case Material Is Released or Spilled: Exposure to the spilled material may be severely irritating or toxic. Follow personal protective equipment recommendations found in Section 8 of this SDS. Personal protective equipment needs must be evaluated based on information provided on this sheet and the special circumstances created by the spill including; the material spilled, the quantity of the spill, the area in which the spill occurred, and the expertise of employees in the area responding to the spill. Never exceed any occupational exposure limits.
Prevent the spread of any spill to minimize harm to human health and the environment if safe to do so. Wear complete and proper personal protective equipment following the recommendation of Section 8 at a minimum. Dike with suitable absorbent material like granulated clay. Gather and store in a sealed container pending a waste disposal evaluation. Shut off ignition sources; including electrical equipment and flames. Do not allow smoking in the area. If this material is released into a work area, evacuate the area immediately.

Section 7 Handling and Storage

Handling: Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Keep container tightly closed. Ground/bo nd container and receiving equipment. Use explosion-proof electrical/ventilating/lighting/…/ equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Do not breathe dust/fume/gas/mist/vapors/spray. Wash thoroughly after handling. Do no eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection. Avoid direct sunlight and heat.

Storage: Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.

Storage Code: Red - Flammables. Store in approved flammable containers. Store away from oxidizing materials.

Section 8 Protection Information

	ACGIH		OSHA PEL	
Chemical Name	**(TWA)**	**(STEL)**	**(TWA)**	**(STEL)**
1-Butanol	20 ppm TWA	N/A	100 ppm TWA; 300 mg/m3 TWA	N/A
Hydrogen Chloride	N/A	2 ppm (Ceiling)	N/A	5 ppm (Ceiling)
p-Dimethylaminobenzaldehyde	N/A	N/A	N/A	N/A

Control Parameters

Engineering Measures: Local exhaust ventilation, process enclosures, or other engineering controls are necessary when handling or using this product to avoid overexposure.

Personal Protective Equipment (PPE): Lab coat, apron, eye wash, safety shower.

Respiratory Protection: Respiratory protection may be required to avoid overexposure when handling this product. General or local exhaust ventilation is the preferred means of protection. Use a respirator if general room ventilation is not available or sufficient to eliminate symptoms.

Respirator Type(s): NIOSH approved air purifying respirator with organic vapor/acid gas cartridge.

Eye Protection: Wear chemical splash goggles when handling this product. Have an eye wash station available.

Skin Protection: Avoid skin contact by wearing chemically resistant gloves, an apron and other protective equipment depending upon conditions of use. Inspect gloves for chemical break-through and replace at regular intervals. Clean protective equipment regularly. Wash hands and other exposed areas with mild soap and water before eating, drinking, and when leaving work.

Gloves: Nitrile, Natural rubber, Neoprene, Butyl rubber

Section 9 Physical Data

Formula: See section 3
Molecular Weight: No data available
Appearance: Yellow Liquid
Odor: Moderate Strong Sweet Rancid
Odor Threshold: No data available
pH: No data available
Melting Point: No data available -90 C
Boiling Point: No data available
Flash Point: Estimated > 37 C
Flammable Limits in Air: 1-Butanol: 1.4 - 11.2
Vapor Pressure: No data available
Evaporation Rate (BuAc=1): No data available
Vapor Density (Air=1): No data available
Specific Gravity: No data available
Solubility in Water: Slightly Soluble
Log Pow (calculated): No data available
Autoignition Temperature: No data available
Decomposition Temperature: No data available
Viscosity: No data available
Percent Volatile by Volume: 87%

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Section 10 Reactivity Data

Reactivity: Mildly reactive - See below
Chemical Stability: Stable under normal conditions.
Conditions to Avoid: Temperatures above the high flash point of this combustible material in combination with sparks, open flames, or other sources of ignition. Reaction with water is exothermic. Exposure to light.
Incompatible Materials: Strong oxidizing agents, Alkali and Alkaline Metals, Halogens, Mineral acids, Water-reactive materials, Water, Caustics (bases), Oxidizing materials, Acetic anhydride, Amines, Alkanolamines, Isocyanates, Copper, Metals
Hazardous Decomposition Products: Hydrogen chloride, Carbon dioxide, Carbon monoxide
Hazardous Polymerization: Will not occur

Section 11 Toxicity Data

Routes of Entry Inhalation, ingestion, eye or skin contact.
Symptoms (Acute): Central Nervous System Disorders, Headache, Gastrointestinal,, Respiratory Irritation, Anesthetic properties.
Delayed Effects: No data available

Acute Toxicity:

Chemical Name	CAS Number	Oral LD50	Dermal LD50	Inhalation LC50
1-Butanol	71-36-3	ORAL LD50 Rat 790 mg/kg	DERMAL LD50 Rabbit 3400 mg/kg	INHALATION LC50-4H Rat > 17.7 MG/L INHALATION LC50-4H Rat 8000 ppm
Water	7732-18-5	Not applicable		
Hydrogen Chloride	7647-01-0	ORAL LD50 Rat 700 mg/kg	DERMAL LD50 Rabbit > 5010 mg/kg	INHALATION LC50-1H Rat 3124 ppm
p-Dimethlaminobenzaldehyde	100-10-7	ORAL LD50 Mouse 800 mg/kg		

Carcinogenicity:

Chemical Name	CAS Number	IARC	NTP	OSHA
Hydrogen Chloride	7647-01-0	Not listed	Not listed	Not listed
p-Dimethylaminobenzaldehyde	100-10-7	Not listed	Not listed	Not listed

Chronic Effects:
Mutagenicity: No evidence of a mutagenic effect.
Teratogenicity: No evidence of a teratogenic effect (birth defect).
Sensitization: No evidence of a sensitization effect.
Reproductive: No evidence of negative reproductive effects.
Target Organ Effects:
Acute: Central Nervous System, Kidneys, Liver
Chronic: No data available

Section 12 Ecological Data

Overview: Slight ecological hazard. In high concentrations, this product may be dangerous to plants and/or wildlife.
Mobility: This material is expected to have moderate mobility in soil. It absorbs to most soil types.
Persistence: Evaporation into atmosphere, Evaporation into atmosphere, dissolved in water.
Bioaccumulation: No data
Degradability: No data
Other Adverse Effects: No data

Chemical Name	CAS Number	Eco Toxicity
1-Butanol	71-36-3	

		96 HR LC50 PIMEPHALES PROMELAS 1910000 µG/L [STATIC] 48 HR EC50 DAPHNIA MAGNA 1983 MG/L 72 HR EC50 DESMODESMUS SUBSPICATUS > 500 MG/L 96 HR EC50 DESMODESMUS SUBSPICATUS > 500 MG/L
Water	7732-18-5	No data available
Hydrogen Chloride	7647-01-0	96 HR LC50 GAMBUSIA AFFINIS 282 MG/L [STATIC]
p-Dimethylaminobenzaldehyde	100-10-7	

Section 13 Disposal Information

Disposal Methods: Dispose in accordance with all applicable Federal, State and Local regulations. Always contact a permitted waste disposer (TSD) to assure compliance.

Waste Disposal Code(s): If discarded, this product is considered a RCRA ignitable waste, D001.
If discarded, this product is considered a RCRA corrosive waste, D002.

Section 14 Transport Information

Ground - DOT Proper Shipping Name:
UN2924
Flammable Liquids, corrosive, N.O.S.
(1-Butanol, Hydrochloric Acid)
Class 3
P.G. II

Air - IATA Proper Shipping Name:
UN2924
Flammable Liquids, corrosive, N.O.S.
(1-Butanol, Hydrochloric Acid)
Class 3
P.G. II

Section 15 Regulatory Information

TSCA Status: All components in this product are on the TSCA Inventory.

Chemical Name	CAS Number	§ 313 Name	§ 304 RQ	CERCLA RQ	§ 302 TPQ	CAA 112(2) TQ
1-Butanol	71-36-3	n-Butyl alcohol	No	5000 lb final RQ; 2270 kg final RQ	No	No
Hydrogen Chloride	7647-01-0	No	No	No	No	No
p-Dimethylaminobenzaldehyde	100-10-7	No	No	No	No	No

Section 16 Additional Information

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The information provided in this (Material) Safety Data Sheet represents a compilation of data drawn directly from various sources available to us. Carolina Biological Supply makes no representation or guarantee as to the suitability of this information to a particular application of the substance covered in the (Material) Safety Data Sheet.

Glossary

ACGIH	American Conference of Governmental Industrial Hygienists	NTP	National Toxicology Program
CAS	Chemical Abstract Service Number	OSHA	Occupational Safety and Health Administration
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	PEL	Permissible Exposure Limit
DOT	U.S. Department of Transportation	ppm	Parts per million
IARC	International Agency for Research on Cancer	RCRA	Resource Conservation and Recovery Act
N/A	Not Available	SARA	Superfund Amendments and Reauthorization Act
		TLV	Threshold Limit Value
		TSCA	Toxic Substances Control Act
		IDLH	Immediately dangerous to life and health