



DIVISION OF WOODWARD MEDICAL

200 Express Street
Plainview, NY 11803

ADDITIONAL INFORMATION PHONE NO.
(800) 645-7034

MATERIAL SAFETY DATA SHEET

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APPROVED BY: *J. Tiedig*

SECTION I: PRODUCT IDENTIFICATION

PRODUCT LABEL NAME: Kovacs' Reagent

SECTION II: HAZARDOUS INGREDIENTS

CHEMICAL NAME	COMMON NAMES	% IN PRODUCT	CAS #
p-Dimethylamino-benzaldehyde	Same	5%	100-10-7
Hydrochloric Acid (conc.)	Same	24%	7647-01-0
N-Amyl Alcohol	Same	71%	71-40-0

SECTION III: PRECAUTIONS FOR HANDLING AND USE OF THE PRODUCT

A. SPILL OR LEAK PROCEDURES

Steps to be taken in case material is released or spilled: Absorb spills with available absorbing materials for flammable liquid.

Waste Disposal Method:

Dispose of in accordance with Federal, State and Local Regulations.

B. SPECIAL PROTECTION INFORMATION

Respiratory Protection: (Specify type) NONE

Ventilation: Local Exhaust ☒ hood Mechanical ☐

Other Protective Equipment: Gloves ☒ Eyes ☒ Other ☐

C. SPECIAL PRECAUTIONS

Recommended Storage Conditions: Store at room temperature (15-30 C) in a flammable storage area. Handle the reagent with care.

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SECTION IV: HAZARDOUS INGREDIENT INFORMATION

HAZARDOUS INGREDIENT: p-DimethylaminobenzaldehydeDOT CLASSIFICATION: None specified CAS 100-10-7A. PHYSICAL/CHEMICAL DATA $(CH_3)_2NC_6H_4CHO$ Molecular Formula: Molecular Weight: 149Boiling Point: 176° CMelting Point: 72° CVapor Pressure (mm Hg): NAIF^aVolatile by Volume (%): NAIFVapor Density (air = 1): NAIFEvaporation Rate (= 1): NAIFSolubility in Water: slightly solubleSpecific Gravity (H₂O = 1): unknownAppearance: white to tan or yellow powder

B. FIRE AND EXPLOSION HAZARD DATA

Flash Point (° F): NAIFMethod Used: NAIFFlammable Limits: Lower NAIFUpper NAIFExtinguishing Media: CO₂ dry chemicalSpecial Fire Fighting Procedures: Wear self contained breathing apparatusUnusual Fire and Explosion Hazards: When heated to decomposition, emits toxic fumes of NO_x.

C. REACTIVITY DATA

Stability: Stable X Unstable Conditions to Avoid: NAIFIncompatibility (Materials to Avoid): NAIFHazardous Polymerization: May Occur Will Not Occur XHazardous Decomposition Products and Conditions: When heated to decomposition, emits toxic fumes of NO_x.

D. HEALTH HAZARD DATA

CARCINOGEN: Yes No X Potential Source: NTP Annual Report IARC Monographs OSHA Other (Specify) NIOSHThreshold Limit Value or Permissible Exposure Level: NAIFTLV/TWA = PEL = Source: OSHA ACGIH Other (Specify) vendor MSDSEffects of Exposure: Harmful if swallowedPrimary Route(s) of Entry: skin, inhalation, ingestion, eyesToxicity Data: NAIFEmergency/First Aid Procedures: If swallowed, induce vomiting immediately by giving 2 glasses of water and sticking finger down throat. Never give anything by mouth to unconscious person.^a = no applicable information found

SECTION IV: HAZARDOUS INGREDIENT INFORMATION

HAZARDOUS INGREDIENT: Hydrochloric AcidDOT CLASSIFICATION: corrosive material

CAS: 7647-01-0

A. PHYSICAL/CHEMICAL DATA

Molecular Formula: HCl Molecular Weight: 36
 Boiling Point: decomposes Melting Point: -27° C
 Vapor Pressure (mm Hg): 4.0 Volatile by Volume (%): 100%
 Vapor Density (air = 1): 1.3 Evaporation Rate (^a = 1): > 1
 Solubility in Water: complete Specific Gravity (H₂O = 1): 1.19
 Appearance: clear, colorless liquid, irritating odor ^a = ether

B. FIRE AND EXPLOSION HAZARD DATA

Flash Point (°F): NAIF^b Method Used: NAIF
 Flammable Limits: Lower NAIF Upper NAIF

Extinguishing Media: NAIFSpecial Fire Fighting Procedures: Use self-contained breathing apparatusUnusual Fire and Explosion Hazards: Gives off fumes of hydrogen chloride

C. REACTIVITY DATA

Stability: Stable X Unstable _____ Conditions to Avoid: Reactions with metals can liberate Hydrogen gas.

Incompatibility (Materials to Avoid): Alkalies and metals, Acetic Anhydride, Ethylene diamine, Ammonium Hydroxide.

Hazardous Polymerization: May Occur _____ Will Not Occur X

Hazardous Decomposition Products and Conditions: Hydrogen chloride

D. HEALTH HAZARD DATA

CARCINOGEN: Yes _____ No X Potential _____

Source: NTP Annual Report _____ IARC Monographs _____ OSHA _____
 Other (Specify) NIOSH

Threshold Limit Value or Permissible Exposure Level:

TLV/TWA = 5ppm PEL = _____

Source: OSHA _____ ACGIH _____ Other (Specify) vendor MSDS

Effects of Exposure: Can cause serious injury at strong concentrations. Causes burns to eyes and skin. Irritating to nose and throat.

Primary Route(s) of Entry: Skin, inhalation, ingestion, eyes.

Toxicity Data: NAIF

Emergency/First Aid Procedures: Skin & Eyes: Irrigate affected area with water for at least 15 minutes.

Ingestion: Dilute with water or milk, do not induce vomiting.

Inhalation: Remove to fresh air.

b = no applicable information found

SECTION IV: HAZARDOUS INGREDIENT INFORMATION

HAZARDOUS INGREDIENT: N-Amyl AlcoholDOT CLASSIFICATION: Flammable LiquidCAS: 71-41-0

A. PHYSICAL/CHEMICAL DATA

Molecular Formula: CH₃(CH₂)₄OHMolecular Weight: 88Boiling Point: 138°CMelting Point: -79°CVapor Pressure (mm Hg): 2.6Volatile by Volume (%): 100%Vapor Density (air = 1): 3.0Evaporation Rate (a = 1): > 1Solubility in Water: 3%Specific Gravity (H₂O = 1): 0.81Appearance: Clear, colorless liquid

a = ether

B. FIRE AND EXPLOSION HAZARD DATA

Flash Point (°F): 120°FMethod Used: NAIF^bFlammable Limits: Lower 1.2Upper 10.0Extinguishing Media: CO₂, dry chemical, alcohol foam.Special Fire Fighting Procedures: NAIFUnusual Fire and Explosion Hazards: NAIF

C. REACTIVITY DATA

Stability: Stable X Unstable Conditions to Avoid: Incompatibility (Materials to Avoid): NAIFHazardous Polymerization: May Occur Will Not Occur XHazardous Decomposition Products and Conditions: NAIF

D. HEALTH HAZARD DATA

CARCINOGEN: Yes No X Potential Source: NTP Annual Report IARC Monographs OSHA Other (Specify) vendor MSDSThreshold Limit Value or Permissible Exposure Level: NAIFTLV TWA = PEL = Source: OSHA ACGIH Other (Specify) vendor MSDSEffects of Exposure: Harmful if swallowed. Irritating to skin, eyes and respiratory tract.Primary Route(s) of Entry: Skin, inhalation, ingestion, eyesToxicity Data: NAIFEmergency First Aid Procedures: Ingestion: induce vomiting. Inhalation: remove to fresh air. Skin and Eyes: flush with water for at least 15 minutes. Consult a physician.

b = no applicable information found