



Material Safety Data Sheet

Section 1. Product and Company Identification

Product Name	Bactident® Indole	Product Code	1.11350
Manufacturer	EMD Chemicals Inc. P.O. Box 70 480 Democrat Road Gibbstown, NJ 08027 Prior to January 1, 2003 EMD Chemicals Inc. was EM Industries, Inc. or EM Science, Division of EM Industries, Inc.	Effective Date	3/4/2006
		Print Date	3/13/2006

For More Information Call

856-423-6300 Technical Service
Monday-Friday: 8:00 AM - 5:00 PM

In Case of Emergency Call

800-424-9300 CHEMTREC (USA)
613-996-6666 CANUTEC (Canada)
24 Hours/Day: 7 Days/Week

Synonym Kovacs Indole Reagent

Material Uses Analytical reagent.

Chemical Family Solution.

Section 2. Composition and Information on Ingredients

Component	CAS #	% by Weight
Water	7732-18-5	10-30
Hydrochloric Acid	7647-01-0	0-20
p-Dimethylaminobenzaldehyde	100-10-7	0-20
1-Butanol	71-36-3	50-70

+ Section 3. Hazards Identification

Physical State and Appearance Liquid.

Emergency Overview WARNING!
FLAMMABLE LIQUID AND VAPOR.
VAPOR MAY CAUSE FLASH FIRE.
HARMFUL IF SWALLOWED.
CAUSES SEVERE EYE IRRITATION.
MAY CAUSE EYE INJURY.
CAUSES RESPIRATORY TRACT AND SKIN IRRITATION.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS:
LUNGS, MUCOUS MEMBRANES, RESPIRATORY TRACT, SKIN, CENTRAL NERVOUS SYSTEM, EYE, LENS OR CORNEA.
MAY BE HARMFUL IF INHALED.

Routes of Entry Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Potential Acute Health Effects

Eyes Extremely hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching. May cause eye injury.

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Skin Hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Non-permeator by skin.

Inhalation Hazardous in case of inhalation (lung irritant). May be hazardous in case of inhalation.

Ingestion Hazardous in case of ingestion.

Potential Chronic Health Effects

Carcinogenic Effects This material is not known to cause cancer in animals or humans.

Additional information See Toxicological Information (section 11)

Medical Conditions Aggravated by Overexposure:

Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

Section 4. First Aid Measures

Eye Contact	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.
Skin Contact	In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.
Ingestion	If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

+ Section 5. Fire Fighting Measures

Flammability of the Product	Product will burn.
Auto-ignition Temperature	The lowest known value is 342.9°C (649.2°F) (1-Butanol).
Flash Points	Closed cup: 36°C (96.8°F).
Flammable Limits	The greatest known range is LOWER: 1.4% UPPER: 11.2% (1-Butanol)
Products of Combustion	These products are carbon oxides (CO, CO ₂), nitrogen oxides (NO, NO ₂ ...), halogenated compounds.
Fire Hazards in Presence of Various Substances	Flammable in presence of open flames, sparks and static discharge, of heat, of oxidizing materials.
Explosion Hazards in Presence of Various Substances	Risks of explosion of the product in presence of static discharge: Flammable in presence of open flames, sparks and static discharge. Risks of explosion of the product in presence of mechanical impact: No.
Fire Fighting Media and Instructions	SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.
Protective Clothing (Fire)	Be sure to use an approved/certified respirator or equivalent.

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Special Remarks on Fire Hazards Vapor may travel considerable distance to source of ignition and flash back. (1-Butanol)

Special Remarks on Explosion Hazards Not available.

Section 6. Accidental Release Measures

Small Spill and Leak Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

Large Spill and Leak Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

Spill Kit Information The following EMD Chemicals Inc. SpillSolv® absorbent is recommended for this product: SX1330 Solvent Treatment Kit

Section 7. Handling and Storage

Handling Keep away from heat, sparks and flame. Keep container closed. Use only with adequate ventilation. Do not get in eyes, on skin, or on clothing. Do not ingest.

Storage Keep container in a cool, well-ventilated area.

Section 8. Exposure Controls/Personal Protection

Engineering Controls Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective occupational exposure limits. Ensure that eyewash stations and safety showers are proximal to the work-station location.

Personal Protection

Eyes Face shield.

Body Full suit.

Respiratory Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate.

Hands Gloves.

Feet Boots.

Protective Clothing (Pictograms)



Personal Protection in Case of a Large Spill

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self-contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

Product Name

Water
Hydrochloric Acid

Exposure Limits

Not available.

EH40-OES (United Kingdom (UK), 1997).

STEL: 8 mg/m³ 15 minute(s).

STEL: 5 ppm 15 minute(s).

TWA: 2 mg/m³ 8 hour(s).

TWA: 1 ppm 8 hour(s).

BMWA MAK (Austria, 2001).

Spitzenbegrenzung: 16 mg/m³ 8 times per shift, 5 minute(s).

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Spitzenbegrenzung: 10 ppm 8 times per shift, 5 minute(s).

TWA: 8 mg/m³ 8 hour(s).

TWA: 5 ppm 8 hour(s).

NOHSC (Australia, 2002). Notes: Documentation for the substances with this footnote can be found in the 5th Edition of the ACGIH documentation of the threshold limit values and biological exposure indices.1 For all other substances with 'H' in Column 7 the documentation can be found in the 6th Edition of the ACGIH documentation of the threshold limit values and biological exposure indices.2

AMP: 7.5 mg/m³ 15 minute(s).

AMP: 5 ppm 15 minute(s).

Lijst Grenswaarden (Belgium, 2002).

VCD: 15 mg/m³ 15 minute(s).

VCD: 10 ppm 15 minute(s).

VL: 8 mg/m³ 8 hour(s).

VL: 5 ppm 8 hour(s).

SUVA (Switzerland, 2001).

Kurzzeitsgrenzwerte: 7.5 mg/m³ 15 minute(s).

Kurzzeitsgrenzwerte: 5 ppm 15 minute(s).

MAK: 7.5 mg/m³ 8 hour(s).

MAK: 5 ppm 8 hour(s).

178/2001 (CZ, 2001).

STEL: 15 mg/m³ 10 minute(s).

STEL: 10.185 ppm 10 minute(s).

TWA: 8 mg/m³ 8 hour(s).

TWA: 5.432 ppm 8 hour(s).

MAK-Werte Liste (Germany, 2000).

Spitzenbegrenzung: 7.6 mg/m³ 15 minute(s).

Spitzenbegrenzung: 5 ML/M3 15 minute(s).

TWA: 7.6 mg/m³ 8 hour(s).

TWA: 5 ML/M3 8 hour(s).

TRGS900 MAK (Germany, 2002).

Spitzenbegrenzung: 8 mg/m³

TWA: 8 mg/m³ 8 hour(s).

Arbejdstilsynet (Denmark, 2000).

Loftværdi: 7 mg/m³

Loftværdi: 5 ppm

GV: 7 mg/m³ 8 hour(s).

GV: 5 ppm 8 hour(s).

INSHT (Spain, 2001).

STEL: 15 mg/m³ 15 minute(s).

STEL: 10 ppm 15 minute(s).

TWA: 7.6 mg/m³ 8 hour(s).

TWA: 5 ppm 8 hour(s).

EU OEL (Europe, 2000). Notes: Indicative

STEL: 15 mg/m³ 15 minute(s).

STEL: 10 ppm 15 minute(s).

TWA: 8 mg/m³ 8 hour(s).

TWA: 5 ppm 8 hour(s).

Työterveyslaitos (Finland, 2002).

STEL: 7.6 mg/m³ 15 minute(s).

STEL: 5 ppm 15 minute(s).

INRS (France, 1999). Notes: Advisory

VLE: 7.5 mg/m³ 15 minute(s).

VLE: 5 ppm 15 minute(s).

NAOSH (Ireland, 2002).

STEL: 14 mg/m³ 15 minute(s).

STEL: 10 ppm 15 minute(s).

OEL: 7 mg/m³ 8 hour(s).

OEL: 5 ppm 8 hour(s).

JSOH (Japan, 1996).

CEIL: 7.5 mg/m³

CEIL: 5 ppm

Ministry of Labor (KR, 1997).

CEIL: 7 mg/m³

CEIL: 5 ppm

Nationale MAC-lijst (Netherlands, 2003). Notes: Administrative

TGG 15 min: 15 mg/m³ 15 minute(s).

TGG 15 min: 10 ppm 15 minute(s).

TGG 8 uur: 8 mg/m³ 8 hour(s).

TGG 8 uur: 5 ppm 8 hour(s).

Arbeidstilsynet (Norway, 2001).

Takverdi: 7 mg/m³

Takverdi: 5 ppm

AN: 7 mg/m³ 8 hour(s).

AN: 5 ppm 8 hour(s).

NZ OSH (NZ, 1994).

CEIL: 7.5 mg/m³

CEIL: 5 ppm

AFS (Sweden, 2000).

TGV: 8 mg/m³

TGV: 5 ppm

KTV: 8 mg/m³ 15 minute(s).

KTV: 5 ppm 15 minute(s).

ACGIH TLV (United States, 2003).

CEIL: 2 ppm

NIOSH REL (United States, 2001).

CEIL: 7 mg/m³

CEIL: 5 ppm

OSHA PEL (United States, 1974).

CEIL: 7 mg/m³

CEIL: 5 ppm

OSHA PEL 1989 (United States, 1989).

CEIL: 7 mg/m³

CEIL: 5 ppm

ACGIH TLV (United States, 2002).

CEIL: 7.5 mg/m³

Not available.

BAUA (Germany, 1997).

Spitzenbegrenzung: 1200 mg/m³

Spitzenbegrenzung: 400 ppm

TWA: 300 mg/m³ 8 hour(s).

TWA: 100 ppm 8 hour(s).

DK-Arbejdstilsynet (Denmark, 1996). Skin

Loftværdi: 150 mg/m³

Loftværdi: 50 ppm

GV: 150 mg/m³ 8 hour(s).

GV: 50 ppm 8 hour(s).

National Authority for Occupational Safety/Health (Ireland, 1999). Skin

STEL: 150 mg/m³ 15 minute(s).

STEL: 50 ppm 15 minute(s).

EH40-OES (United Kingdom (UK), 1997). Skin

STEL: 154 mg/m³ 15 minute(s).

STEL: 50 ppm 15 minute(s).

ACGIH (United States, 1994). Skin

CEIL: 152 mg/m³

CEIL: 50 ppm

p-Dimethylaminobenzaldehyde
1-Butanol

NIOSH REL (United States, 1994). Skin

CEIL: 150 mg/m³

CEIL: 50 ppm

OSHA Final Rule (United States, 1989). Skin

CEIL: 150 mg/m³

CEIL: 50 ppm

Section 9. Physical and Chemical Properties

Odor	Not available.
Color	Not available.
Physical State and Appearance	Liquid.
Molecular Weight	Not applicable.
Molecular Formula	Not applicable.
pH	Not available.
Boiling/Condensation Point	The lowest known value is 99.9°C (211.8°F) (Water). Weighted average: 112.98°C (235.4°F)
Melting/Freezing Point	May start to solidify at -0.1°C (31.8°F) based on data for: Water. Weighted average: -67.46°C (-89.4°F)
Critical Temperature	The lowest known value is 51.5°C (124.7°F) (Hydrochloric Acid).
Specific Gravity	Weighted average: 0.85 (Water = 1)
Vapor Pressure	The highest known value is 21.3 kPa (160 mmHg) (@ 20°C) (Hydrochloric Acid).
Vapor Density	The highest known value is 2.6 (Air = 1) (1-Butanol). Weighted average: 2.39 (Air = 1)
Odor Threshold	The lowest known value is 25 ppm (1-Butanol)
Evaporation Rate	The highest known value is 0.44 (1-BUTANOL) Weighted average: 0.42 compared to (n-BUTYL ACETATE=1)
LogK_{ow}	Not available.
Solubility	Soluble in water.

Section 10. Stability and Reactivity

Stability and Reactivity	The product is stable.
Conditions of Instability	Not available.
Incompatibility with Various Substances	Reactive with metals, acids, alkalis. Slightly reactive to reactive with oxidizing agents.
Rem/Incompatibility	Not available.
Hazardous Decomposition Products	These products are halogenated compounds.
Hazardous Polymerization	Will not occur.

Section 11. Toxicological Information

RTECS Number:	Water Hydrochloric Acid p-Dimethylaminobenzaldehyde Butyl Alcohol	ZC0110000 MW4025000 CU5775000 EO1400000
Toxicity	Acute oral toxicity (LD ₅₀): 790 mg/kg [Rat]. (1-Butanol). Acute dermal toxicity (LD ₅₀): 3400 mg/kg [Rabbit]. (1-Butanol). Acute toxicity of the vapor (LC ₅₀): 1108 ppm 1 hour(s) [Mouse]. (Hydrochloric Acid).	
Chronic Effects on Humans	Not available.	
Acute Effects on Humans	Extremely hazardous in case of eye contact (irritant). Inflammation of the eye is characterized by redness, watering, and itching. Hazardous in case of skin contact (irritant). Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering. Non-permeator by skin. Hazardous in case of inhalation (lung irritant). May be hazardous in case of inhalation. Hazardous in case of ingestion.	
Synergetic Products (Toxicologically)	Not available.	
Irritancy	<u>Draize Test</u> : Not available.	
Sensitization	Not available.	
Carcinogenic Effects	This material is not known to cause cancer in animals or humans.	
Toxicity to Reproductive System	Not available.	
Teratogenic Effects	Not available.	
Mutagenic Effects	Not available.	

Section 12. Ecological Information

Ecotoxicity	Not available.
BOD5 and COD	Not available.
Toxicity of the Products of Biodegradation	The products of degradation are as toxic as the product itself.

Section 13. Disposal Considerations

EPA Waste Number	U031 D001 D002
Treatment	Specified Technology - Incineration or fuels blending to less than the TCLP standard. Contact your local permitted waste disposal site (TSD) for permissible treatment sites. Always contact a permitted waste disposal (TSD) to assure compliance with all current local, state, and Federal Regulations.

Section 14. Transport Information

DOT Classification Proper Shipping Name: CORROSIVE
LIQUID, FLAMMABLE, N.O.S. (CONTAINS
HYDROCHLORIC ACID AND BUTANOL)
Hazard Class: 8
UN number: UN2920
Packing Group: II
RQ: Not applicable.

TDG Classification Not available.

**IMO/IMDG
Classification** Not available.

**ICAO/IATA
Classification** Not available.

Section 15. Regulatory Information

U.S. Federal Regulations TSCA 4(a) final test rules: 1-Butanol
TSCA 8(a) PAIR: p-Dimethylaminobenzaldehyde
TSCA 8(b) inventory: Water; Hydrochloric Acid; p-Dimethylaminobenzaldehyde; 1-Butanol
TSCA 12(b) one time export: 1-Butanol
SARA 302/304/311/312 extremely hazardous substances: Hydrochloric Acid
SARA 302/304 emergency planning and notification: Hydrochloric Acid
SARA 302/304/311/312 hazardous chemicals: Hydrochloric Acid; 1-Butanol
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Hydrochloric Acid:
Sudden Release of Pressure, Immediate (Acute) Health Hazard, Delayed (Chronic) Health
Hazard; 1-Butanol: Fire Hazard, Immediate (Acute) Health Hazard, Delayed (Chronic) Health
Hazard
SARA 313 toxic chemical notification and release reporting: Hydrochloric Acid 10%; 1-Butanol
60%
Clean Water Act (CWA) 307: No products were found.
Clean Water Act (CWA) 311: Hydrochloric Acid
Clean air act (CAA) 112 accidental release prevention: Hydrochloric Acid
Clean air act (CAA) 112 regulated flammable substances: No products were found.
Clean air act (CAA) 112 regulated toxic substances: Hydrochloric Acid

WHMIS (Canada) WHMIS Class B-2: Flammable liquid with a flash point lower than 37.8°C (100°F).
WHMIS Class D-2B: Material causing other toxic effects (TOXIC).
CEPA DSL: Water; Hydrochloric Acid; p-Dimethylaminobenzaldehyde; 1-Butanol
This product has been classified in accordance with the hazard criteria of the Controlled Product
Regulations and the MSDS contains all required information.

International Regulations

EINECS

Water	231-791-2
Hydrochloric Acid	231-595-7
p-Dimethylaminobenzaldehyde	202-819-0
1-Butanol	200-751-6

DSCL (EEC)

R10- Flammable.
R22- Harmful if swallowed.
R37/38- Irritating to respiratory system and skin.
R41- Risk of serious damage to eyes.

International Lists Australia (NICNAS): Water; Hydrochloric Acid; p-Dimethylaminobenzaldehyde; 1-Butanol

China: Hydrochloric Acid

Germany water class: Hydrochloric Acid

Japan (MITI): Water; Hydrochloric Acid; p-Dimethylaminobenzaldehyde; 1-Butanol

Japan (MOL): 1-Butanol

Korea (TCCL): Water; Hydrochloric Acid; p-Dimethylaminobenzaldehyde; 1-Butanol

Philippines (RA6969): Water; Hydrochloric Acid; p-Dimethylaminobenzaldehyde; 1-Butanol
China: Hydrochloric Acid

State Regulations

Pennsylvania RTK: Hydrochloric Acid: (environmental hazard, generic environmental hazard); 1-Butanol: (environmental hazard, generic environmental hazard)
Massachusetts RTK: Hydrochloric Acid; 1-Butanol
New Jersey: Hydrochloric Acid; 1-Butanol
California prop. 65: No products were found.

Section 16. Other Information

**National Fire
Protection
Association
(U.S.A.)**



**Changed Since Last
Revision**

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Notice to Reader

The statements contained herein are based upon technical data that EMD Chemicals Inc. believes to be reliable, are offered for information purposes only and as a guide to the appropriate precautionary and emergency handling of the material by a properly trained person having the necessary technical skills. Users should consider these data only as a supplement to other information gathered by them and must make independent determinations of suitability and completeness of information from all sources to assure proper use, storage and disposal of these materials and the safety and health of employees and customers and the protection of the environment. EMD CHEMICALS INC. MAKES NO REPRESENTATION OR WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING MERCHANTABILITY OR FITNESS FOR A PARTICULAR USE, WITH RESPECT TO THE INFORMATION HEREIN OR THE PRODUCT TO WHICH THE INFORMATION REFERS.