



SAFETY DATA SHEET

ROHM AND HAAS ELECTRONIC MATERIALS LLC

Product name: MICROPOSIT™ REMOVER 1165

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ROHM AND HAAS ELECTRONIC MATERIALS LLC encourages and expects you to read and understand the entire (M)SDS, as there is important information throughout the document. We expect you to follow the precautions identified in this document unless your use conditions would necessitate other appropriate methods or actions.

1. IDENTIFICATION

Product name: MICROPOSIT™ REMOVER 1165

Recommended use of the chemical and restrictions on use

Identified uses: Chemical Specialty

COMPANY IDENTIFICATION

ROHM AND HAAS ELECTRONIC MATERIALS LLC
A Subsidiary of The Dow Chemical Company
455 FOREST STREET
MARLBOROUGH MA 01752
UNITED STATES

Customer Information Number:

215-592-3000

SDSQuestion@dow.com

EMERGENCY TELEPHONE NUMBER

24-Hour Emergency Contact: 1 800 424 9300

Local Emergency Contact: 800-424-9300

2. HAZARDS IDENTIFICATION

Hazard classification

This material is hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

Flammable liquids - Category 4

Skin irritation - Category 2

Eye irritation - Category 2A

Reproductive toxicity - Category 1B

Specific target organ toxicity - single exposure - Category 3

Label elements

Hazard pictograms



Signal word: **DANGER!**

Hazards

Combustible liquid.
Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.
May damage fertility or the unborn child.

Precautionary statements

Prevention

Obtain special instructions before use.
Do not handle until all safety precautions have been read and understood.
Keep away from heat/sparks/open flames/hot surfaces. - No smoking.
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
Wash skin thoroughly after handling.
Use only outdoors or in a well-ventilated area.
Wear protective gloves/ eye protection/ face protection.
Use personal protective equipment as required.

Response

IF ON SKIN: Wash with plenty of soap and water.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF exposed or concerned: Get medical advice/ attention.
If skin irritation occurs: Get medical advice/ attention.
If eye irritation persists: Get medical advice/ attention.
Take off contaminated clothing and wash before reuse.
In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

Storage

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

Disposal

Dispose of contents/ container to an approved waste disposal plant.

Other hazards

no data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical nature: Solution of organic compounds
This product is a mixture.

Component	CASRN	Concentration
1-methyl-2-pyrrolidinone	872-50-4	90.0 - 99.0 %
Pyrrolidinone Compound		1.0 - 10.0 %

4. FIRST AID MEASURES

Description of first aid measures

General advice: If potential for exposure exists refer to Section 8 for specific personal protective equipment. First Aid responders should pay attention to self-protection and use the recommended protective clothing

Inhalation: Remove from exposure. If there is difficulty in breathing, give oxygen. Seek medical attention if symptoms persist.

Skin contact: Wash skin with water. Continue washing for at least 15 minutes. Obtain medical attention if blistering occurs or redness persists.

Eye contact: Immediately flush the eye with plenty of water for at least 15 minutes, holding the eye open. Obtain medical attention if soreness or redness persists.

Ingestion: Wash out mouth with water. Have victim drink 1-3 glasses of water to dilute stomach contents. Induce vomiting if person is conscious. Immediate medical attention is required. Never administer anything by mouth if a victim is losing consciousness, is unconscious or is convulsing.

Most important symptoms and effects, both acute and delayed: Aside from the information found under Description of first aid measures (above) and Indication of immediate medical attention and special treatment needed (below), any additional important symptoms and effects are described in Section 11: Toxicology Information.

Indication of any immediate medical attention and special treatment needed

Notes to physician: Treat symptomatically.

5. FIREFIGHTING MEASURES

Suitable extinguishing media: Use water spray, foam, dry chemical or carbon dioxide. Keep containers and surroundings cool with water spray.

Unsuitable extinguishing media: no data available

Special hazards arising from the substance or mixture

Hazardous combustion products: no data available

Unusual Fire and Explosion Hazards: This product may give rise to hazardous vapors in a fire. Vapors can travel a considerable distance to a source of ignition and result in flashback.

Advice for firefighters

Fire Fighting Procedures: Keep people away. Isolate fire and deny unnecessary entry.

Special protective equipment for firefighters: Wear full protective clothing and self-contained breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures: Wear suitable protective clothing. Wear respiratory protection. Eliminate all ignition sources.

Environmental precautions: Prevent the material from entering drains or water courses. Do not discharge directly to a water source. Advise Authorities if spillage has entered watercourse or sewer or has contaminated soil or vegetation.

Methods and materials for containment and cleaning up: Contain spills immediately with inert materials (e.g., sand, earth). Transfer into suitable containers for recovery or disposal. Finally flush area with plenty of water.

7. HANDLING AND STORAGE

Precautions for safe handling: Use local exhaust ventilation. Avoid contact with eyes, skin and clothing. Keep container tightly closed.

Conditions for safe storage: Store in original container. Keep away from heat and sources of ignition. Storage area should be: cool dry well ventilated out of direct sunlight. Keep away from heat, sparks, flame, and other sources of ignition. Practice good personal hygiene to prevent accidental exposure.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Control parameters

Exposure limits are listed below, if they exist.

Component	Regulation	Type of listing	Value/Notation
1-methyl-2-pyrrolidinone	Rohm and Haas	TWA	10 ppm
	Rohm and Haas	TWA	10 ppm
	Rohm and Haas	STEL	25 ppm
	Rohm and Haas	STEL	25 ppm
	Rohm and Haas	Absorbed via skin	
	Rohm and Haas	Absorbed via skin	
	US WEEL	TWA	10 ppm
	US WEEL	TWA	Absorbed via skin

Exposure controls

Engineering controls: Engineering methods to prevent or control exposure are preferred. Methods include process or personnel enclosure, mechanical ventilation (local exhaust), and control of process conditions.

Individual protection measures

Eye/face protection: Goggles

Skin protection

Hand protection: Butyl rubber gloves. Other chemical resistant gloves may be recommended by your safety professional.

Other protection: Normal work wear.

Respiratory protection: Respiratory protection if there is a risk of exposure to high vapor concentrations. The specific respirator selected must be based on the airborne concentration found in the workplace and must not exceed the working limits of the respirator.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Physical state	liquid
Color	Natural, slightly white
Odor	Amines.
Odor Threshold	no data available
pH	Not applicable
Melting point/range	no data available
Freezing point	no data available
Boiling point (760 mmHg)	202 °C (396 °F)
Flash point	88 °C (190 °F)
Evaporation Rate (Butyl Acetate = 1)	Slower than ether
Flammability (solid, gas)	Not Applicable
Lower explosion limit	no data available
Upper explosion limit	no data available
Vapor Pressure	no data available
Relative Vapor Density (air = 1)	Heavier than air.
Relative Density (water = 1)	1.03
Water solubility	completely soluble
Partition coefficient: n-octanol/water	no data available
Auto-ignition temperature	no data available
Decomposition temperature	no data available
Kinematic Viscosity	no data available
Explosive properties	no data available
Oxidizing properties	no data available
Molecular weight	no data available
Volatile Organic Compounds	1,030 g/L

NOTE: The physical data presented above are typical values and should not be construed as a specification.

10. STABILITY AND REACTIVITY

Reactivity: no data available

Chemical stability: Stable under normal conditions.

Possibility of hazardous reactions: No dangerous reaction known under conditions of normal use. Product will not undergo hazardous polymerization.

Conditions to avoid: High temperatures Static discharge

Incompatible materials: Reducing agents Oxidizing agents Acids

Hazardous decomposition products: Carbon monoxide carbon dioxide Nitrogen oxides (NOx)

11. TOXICOLOGICAL INFORMATION

Toxicological information on this product or its components appear in this section when such data is available.

Acute toxicity

Acute oral toxicity

Product test data not available.

Acute dermal toxicity

Product test data not available.

Acute inhalation toxicity

Product test data not available.

Skin corrosion/irritation

Product test data not available.

Serious eye damage/eye irritation

Product test data not available.

Sensitization

Product test data not available.

Specific Target Organ Systemic Toxicity (Single Exposure)

Product test data not available.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Product test data not available.

Carcinogenicity

Not considered carcinogenic by NTP, IARC, and OSHA

Teratogenicity

Product test data not available.

Reproductive toxicity

Product test data not available.

Mutagenicity

Product test data not available.

Aspiration Hazard

Product test data not available.

COMPONENTS INFLUENCING TOXICOLOGY:

1-methyl-2-pyrrolidinone

Acute oral toxicity

LD50, Rat, male and female, 4,150 mg/kg OECD Test Guideline 401

Acute dermal toxicity

LD50, Rat, male and female, > 5,000 mg/kg OECD Test Guideline 402

Acute inhalation toxicity

LC50, Rat, male and female, 4 Hour, Aerosol, > 5.1 mg/l OECD Test Guideline 403 No deaths occurred at this concentration.

Skin corrosion/irritation

Brief contact may cause skin irritation with local redness.

Prolonged contact may cause moderate skin irritation with local redness.

Repeated contact may cause skin burns. Symptoms may include pain, severe local redness, swelling, and tissue damage.

May cause drying and flaking of the skin.

May cause more severe response if skin is abraded (scratched or cut).

Serious eye damage/eye irritation

May cause severe eye irritation.

May cause moderate corneal injury.

Sensitization

Did not cause allergic skin reactions when tested in guinea pigs.

For respiratory sensitization:

No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

May cause respiratory irritation.

Route of Exposure: Inhalation

Target Organs: Respiratory Tract

Specific Target Organ Systemic Toxicity (Repeated Exposure)

Based on available data, repeated exposures are not anticipated to cause significant adverse effects.

Teratogenicity

N-methyl pyrrolidone has caused toxic effects to the fetus in laboratory animals at high dose levels with either mild or undetectable maternal toxicity.

Reproductive toxicity

In animal studies, did not interfere with reproduction.

Mutagenicity

In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were negative.

Aspiration Hazard

Based on physical properties, not likely to be an aspiration hazard.

Pyrrolidinone Compound

Acute oral toxicity

LD50, Rat, 14,430 mg/kg

Acute dermal toxicity

The dermal LD50 has not been determined.

Acute inhalation toxicity

The LC50 has not been determined.

Skin corrosion/irritation

Essentially nonirritating to skin.

Serious eye damage/eye irritation

Mild eye irritation

Sensitization

For skin sensitization:
No relevant data found.

For respiratory sensitization:
No relevant data found.

Specific Target Organ Systemic Toxicity (Single Exposure)

May cause respiratory irritation.
Route of Exposure: Inhalation
Target Organs: Respiratory Tract

The substance or mixture is not classified as specific target organ toxicant, single exposure.

Specific Target Organ Systemic Toxicity (Repeated Exposure)

No relevant data found.

Teratogenicity

No relevant data found.

Reproductive toxicity

No relevant data found.

Mutagenicity

No mutagenic activity was observed in bacterial cells.

Aspiration Hazard

No aspiration toxicity classification

Carcinogenicity

Not considered carcinogenic by NTP, IARC, and OSHA

12. ECOLOGICAL INFORMATION

Ecotoxicological information on this product or its components appear in this section when such data is available.

Toxicity**1-methyl-2-pyrrolidinone****Acute toxicity to fish**

Material is practically non-toxic to aquatic organisms on an acute basis (LC50/EC50/EL50/LL50 >100 mg/L in the most sensitive species tested).
LC50, Oncorhynchus mykiss (rainbow trout), static test, 96 Hour, > 5,000 mg/l
LC50, Pimephales promelas (fathead minnow), static test, 96 Hour, 1,072 mg/l

Acute toxicity to aquatic invertebrates

EC50, Daphnia magna (Water flea), static test, 24 Hour, > 1,000 mg/l, OECD Test Guideline 202 or Equivalent

Acute toxicity to algae/aquatic plants

ErC50, Desmodesmus subspicatus (green algae), static test, 72 Hour, Growth rate inhibition, > 500 mg/l, OECD Test Guideline 201 or Equivalent

Chronic toxicity to aquatic invertebrates

NOEC, Daphnia magna (Water flea), semi-static test, 21 d, 12.5 mg/l

Pyrrolidinone Compound**Acute toxicity to fish**

No relevant data found.

Persistence and degradability**1-methyl-2-pyrrolidinone**

Biodegradability: Material is readily biodegradable. Passes OECD test(s) for ready biodegradability.

10-day Window: Pass

Biodegradation: 91 %

Exposure time: 28 d

Method: OECD Test Guideline 301B or Equivalent

Theoretical Oxygen Demand: 2.58 mg/mg

Photodegradation

Test Type: Half-life (indirect photolysis)
Sensitizer: OH radicals
Atmospheric half-life: 0.486 d
Method: Estimated.

Pyrrolidinone Compound

Biodegradability: No relevant data found.

Bioaccumulative potential

1-methyl-2-pyrrolidinone

Bioaccumulation: Bioconcentration potential is low (BCF < 100 or Log Pow < 3).
Partition coefficient: n-octanol/water(log Pow): -0.38 Measured

Mobility in soil

1-methyl-2-pyrrolidinone

Given its very low Henry's constant, volatilization from natural bodies of water or moist soil is not expected to be an important fate process.
 Potential for mobility in soil is very high (Koc between 0 and 50).
Partition coefficient(Koc): 21 Estimated.

Pyrrolidinone Compound

No relevant data found.

13. DISPOSAL CONSIDERATIONS

Disposal methods: Dispose in accordance with all local, state (provincial), and federal regulations. Incineration is the recommended method of disposal for containers. Under RCRA, it is the responsibility of the product's user to determine at the time of disposal, whether the product meets RCRA criteria for hazardous waste. This is because the product uses, transformations, mixtures, processes, etc. may render the resulting materials hazardous.

Treatment and disposal methods of used packaging: Empty containers retain product residues. Follow label warnings even after container is emptied. Improper disposal or reuse of this container may be dangerous and illegal. Refer to applicable federal, state and local regulations.

14. TRANSPORT INFORMATION

DOT

Proper shipping name	Combustible liquid, n.o.s.(N-Methyl-2-pyrrolidone)
UN number	NA 1993
Class	CBL
Packing group	III

Classification for SEA transport (IMO-IMDG):

Transport in bulk according to Annex I or II	Not regulated for transport Consult IMO regulations before transporting ocean bulk
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**of MARPOL 73/78 and the
IBC or IGC Code****Classification for AIR transport (IATA/ICAO):**

Not regulated for transport

This information is not intended to convey all specific regulatory or operational requirements/information relating to this product. Transportation classifications may vary by container volume and may be influenced by regional or country variations in regulations. Additional transportation system information can be obtained through an authorized sales or customer service representative. It is the responsibility of the transporting organization to follow all applicable laws, regulations and rules relating to the transportation of the material.

15. REGULATORY INFORMATION

OSHA Hazard Communication Standard

This product is considered hazardous under the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Sections 311 and 312

Immediate (acute) Health Hazard
Fire Hazard

Superfund Amendments and Reauthorization Act of 1986 Title III (Emergency Planning and Community Right-to-Know Act of 1986) Section 313

This product contains a chemical which is listed in Section 313 at or above de minimis concentrations.

Components

Methyl pyrrolidone

CASRN

872-50-4

California (Proposition 65)

This product contains a component or components known to the state of California to cause cancer and/or reproductive harm.

Components

1-methyl-2-pyrrolidinone

CASRN

872-50-4

United States TSCA Inventory (TSCA)

All components of this product are in compliance with the inventory listing requirements of the U.S. Toxic Substances Control Act (TSCA) Chemical Substance Inventory.

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16. OTHER INFORMATION

Hazard Rating System**NFPA**

Health	Fire	Reactivity
1	2	0

Revision

Identification Number: 101103192 / 1304 / Issue Date: 03/09/2015 / Version: 2.0

Most recent revision(s) are noted by the bold, double bars in left-hand margin throughout this document.

Legend

Absorbed via skin	Absorbed via skin
Rohm and Haas	Rohm and Haas OEL's
STEL	Short term exposure limit
TWA	Time weighted average
US WEEL	USA. Workplace Environmental Exposure Levels (WEEL)

Information Source and References

This SDS is prepared by Product Regulatory Services and Hazard Communications Groups from information supplied by internal references within our company.

ROHM AND HAAS ELECTRONIC MATERIALS LLC urges each customer or recipient of this (M)SDS to study it carefully and consult appropriate expertise, as necessary or appropriate, to become aware of and understand the data contained in this (M)SDS and any hazards associated with the product. The information herein is provided in good faith and believed to be accurate as of the effective date shown above. However, no warranty, express or implied, is given. Regulatory requirements are subject to change and may differ between various locations. It is the buyer's/user's responsibility to ensure that his activities comply with all federal, state, provincial or local laws. The information presented here pertains only to the product as shipped. Since conditions for use of the product are not under the control of the manufacturer, it is the buyer's/user's duty to determine the conditions necessary for the safe use of this product. Due to the proliferation of sources for information such as manufacturer-specific (M)SDSs, we are not and cannot be responsible for (M)SDSs obtained from any source other than ourselves. If you have obtained an (M)SDS from another source or if you are not sure that the (M)SDS you have is current, please contact us for the most current version.