

FAX 86126254583  
SWITCH  
ORIG

*Klein Johnson*

TO: ATTN: KLEIN JOHNSON  
UNIV. OF MINNISOTA  
MINNEAPOLIS MN

PAGE 01 OF 08

OLIN CORPORATION  
Material Safety Data Sheet

11/29/94

FOR FURTHER INFORMATION (OTHER THAN EMERGENCIES) CALL:

(203) 356-3449

Product Name: **PROBIMIDE 287**  
Product Code: JPE850910  
MSDS Number: JPE00998.0008

OCEAN NETWORK EMERGENCY PHONE 1-800-OLIN-911

This Material Safety Data Sheet (MSDS) has been prepared in compliance with the Federal OSHA Hazard Communication Standard, 29 CFR 1910.1200. This product may be considered to be a hazardous chemical under that standard. (Refer to the OSHA classification in SEC.1.) This information is required to be disclosed for safety in the workplace. The exposure to the community, if any, is quite different.

## I. PRODUCT IDENTIFICATION

REVISION NUMBER : 02  
REVISION DATE : 01/26/94  
MSDS FILE NUMBER: JPE00998.0008  
PRODUCT CODE : 850910  
MSDS NAME : **PROBIMIDE 287**

SYNONYMS: None

CHEMICAL FAMILY: Polyimide

FORMULA: Not Applicable/Mixture

USE DESCRIPTION: Protective coating for electronic devices

OSHA HAZARD CLASSIFICATION: Eye, skin and respiratory irritant, eye hazard, nervous system toxin

## II. COMPONENT-DATA

## PRODUCT COMPOSITION

CAS or CHEMICAL NAME: Gamma butyrolactone  
PROBIMIDE 287

JPE850910

PAGE 2

CAS NUMBER: 96-48-0  
PERCENTAGE RANGE: 80-90%  
HAZARDOUS PER 29 CFR 1910.1200: Yes  
EXPOSURE STANDARDS: None established

CAS or CHEMICAL NAME: Isobenzofurandione, polymer with aminophenyl  
indene amine

CAS NUMBER: 62929-02-6  
PERCENTAGE RANGE: 10-20%  
HAZARDOUS PER 29 CFR 1910.1200: No  
EXPOSURE STANDARDS: None established

## III. SAFE HANDLING AND STORAGE

DO NOT TAKE INTERNALLY. AVOID CONTACT WITH SKIN, EYES AND CLOTHING. UPON  
CONTACT WITH SKIN OR EYES, WASH OFF WITH WATER.

## STORAGE CONDITIONS:

STORE IN A COOL, DRY, WELL VENTILATED PLACE AWAY FROM ALL SOURCES OF  
IGNITION.

DO NOT STORE AT TEMPERATURES ABOVE: 25 Deg.C (77 Deg.F)

## PRODUCT STABILITY AND COMPATIBILITY

SHELF LIFE LIMITATIONS: 1 year

INCOMPATIBLE MATERIALS FOR STORAGE OR TRANSPORT: See Section VII.  
"Incompatible Materials".

## IV. PHYSICAL DATA

APPEARANCE: Clear liquid with a mild odor

FREEZING POINT: No Data

BOILING POINT: 205 Deg.C

DECOMPOSITION TEMPERATURE: No Data

SPECIFIC GRAVITY: No Data

BULK DENSITY: No Data

pH @ 25 DEG.C: Not Applicable

VAPOR PRESSURE @ 25 DEG.C: No Data

SOLUBILITY IN WATER: Partial

VOLATILES, PERCENT BY VOLUME: 80-90%

EVAPORATION RATE: < 1 (Butyl acetate = 1)

VAPOR DENSITY: 3 (Air: 1)

MOLECULAR WEIGHT: Not Applicable/Mixture

ODOR: Mild

COEFFICIENT OF OIL/WATER DISTRIBUTION: No Data

## V. PERSONAL PROTECTIVE EQUIP

PERSONAL PROTECTION FOR ROUTINE USE OF PRODUCT:

## RESPIRATORY PROTECTION:

Wear a NIOSH/MSHA approved respirator if any exposure occurs.

## VENTILATION:

Use explosion-proof local exhaust ventilation.

## SKIN AND EYE PROTECTIVE EQUIPMENT:

Use chemical goggles and impermeable gloves.



## • EQUIPMENT SPECIFICATIONS (WHEN APPLICABLE):

RESPIRATOR TYPE: NIOSH/MSHA approved positive-pressure supplied-air  
respirator

PROBIMIDE 287

JPE850910

PAGE 3

PROTECTIVE CLOTHING TYPE (This includes: gloves, boots, apron,  
protective suit): Impervious

## VI. FIRE &amp; EXPLOSION HAZARDS

## FLAMMABILITY DATA:

EXPLOSIVE: No

FLAMMABLE: No

COMBUSTIBLE: No

PYROPHORIC: No

FLASH POINT: 98 Deg.C (209 Deg.F) Test Method: Tag closed cup

AUTOIGNITION TEMPERATURE: No Data

FLAMMABLE LIMITS AT NORMAL ATMOSPHERIC TEMPERATURE AND PRESSURE (PERCENT

VOLUME IN AIR): 1.4% - LEL 6.9% - UEL

## NFPA RATINGS:

Not Established

## HMIS RATINGS:

Health: 3

Flammability: 2

Reactivity: 0

## EXTINGUISHING MEDIA:

Regular foam, dry chemical, carbon dioxide, water spray

## FIRE FIGHTING TECHNIQUES AND COMMENTS:

Use water to cool containers exposed to fire.

See Section XI for protective equipment for fire fighting.

## VII. REACTIVITY

## CONDITIONS UNDER WHICH THIS PRODUCT MAY BE UNSTABLE:

TEMPERATURES ABOVE: 35 Deg.C (95 Deg.F)

MECHANICAL SHOCK OR IMPACT: No

ELECTRICAL (STATIC) DISCHARGE: No

HAZARDOUS POLYMERIZATION: Will not occur

INCOMPATIBLE MATERIALS: Strong oxidizers

HAZARDOUS DECOMPOSITION PRODUCTS: Carbon monoxide, carbon dioxide,  
aldehydes, nitrogen oxides

OTHER CONDITIONS TO AVOID: Ignition sources of any kind

## SUMMARY OF REACTIVITY:

EXPLOSIVE: No

OXIDIZER: No

PYROPHORIC: No

ORGANIC PEROXIDE: No

WATER REACTIVE: No

## VIII. FIRST AID

## EYES:

Immediately flush with large amounts of water for at least 15  
minutes, occasionally lifting the upper and lower eyelids. Call a  
physician at once.

## SKIN:

Immediately flush with water for 15 minutes. Wash the contaminated skin with soap and water. If irritation develops, call a physician.

PROBIMIDE 287

JPE850910

PAGE 4

If clothing comes in contact with the product, the clothing should be laundered before re-use.

## INGESTION:

Immediately drink large quantities of water. Induce vomiting. Call a physician at once. DO NOT give anything by mouth if the person is unconscious or if having convulsions.

## INHALATION:

If person experiences nausea, headache or dizziness, person should stop work immediately and move to fresh air until these symptoms disappear. If breathing is difficult, administer oxygen, keep the person warm and at rest. Call a physician. In the event that an individual inhales enough product to lose consciousness, person should be moved to fresh air at once and a physician should be called immediately. If breathing has stopped, artificial respiration should be given immediately. In all cases, ensure adequate ventilation and provide respiratory protection before the person returns to work.

## IX. TOXICOLOGY &amp; HEALTH

## ROUTES OF ABSORPTION

Eye contact, oral ingestion, inhalation, dermal contact

## WARNING STATEMENTS AND WARNING PROPERTIES

\* HARMFUL IF SWALLOWED. HARMFUL IF INHALED. CAUSES EYE IRRITATION. CAUSES MUCOUS MEMBRANE IRRITATION. MAY CAUSE SKIN IRRITATION. MAY CAUSE RESPIRATORY IRRITATION. MAY CAUSE C.N.S. DEPRESSION.

## HUMAN THRESHOLD RESPONSE DATA

ODOR THRESHOLD: No Data

IRRITATION THRESHOLD: No Data

IMMEDIATELY DANGEROUS TO LIFE OR HEALTH: The IDLH concentration has not been established for this product.

## SIGNS, SYMPTOMS, AND EFFECTS OF EXPOSURE:

## INHALATION

## ACUTE:

N If inhaled, may cause irritation to the upper respiratory tract. Any irritation would be transient with no permanent damage expected. Inhalation of high concentrations may produce CNS depression, characterized by: headache, dizziness, weakness, drowsiness, fatigue, mental confusion, nausea, and vomiting.

## CHRONIC:

There are no known or reported effects from chronic exposure except for effects similar to those experienced from single exposure.

## SKIN

## ACUTE:

Skin contact may produce mild irritation consisting of transient redness. This irritant effect would not result in permanent damage.

## CHRONIC:

Prolonged or repeated skin contact may result in significant amount of product being absorbed dermally. This may cause C.N.S. depression



with symptoms similar to those listed under acute inhalation exposure.

EYE  
PROBIMIDE 287

JPE850910

PAGE 5

Contact with the eyes would be expected to cause irritation consisting of painful stinging or burning of eyes and lids, redness, swelling, and mucous discharge to the conjunctiva. Contact with the eyes may cause corneal clouding (opaqueness of cornea) which may result in permanent eye damage leading to loss of sight.

#### INGESTION

##### ACUTE:

Ingestion may cause gastrointestinal discomfort with any or all of the following symptoms: nausea, vomiting, lethargy, or diarrhea. If significant quantities are ingested, may cause C.N.S. depression with symptoms similar to those listed under acute inhalation exposure.

##### CHRONIC:

There are no known or reported effects from chronic exposure except for effects similar to those experienced from single exposure.

#### MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:

None known or reported

#### INTERACTIONS WITH OTHER CHEMICALS WHICH ENHANCE TOXICITY:

None known or reported

#### ANIMAL TOXICOLOGY

##### ACUTE TOXICITY:

Inhalation LC 50: No Data

Dermal LD 50: > 2 g/kg (guinea pig), based on constituents

Oral LD 50: Approximately 1-2 g/kg (rat), based on constituents;  
harmful if swallowed

Irritation: Eye and mucous membrane irritant; may be a respiratory and skin irritant

##### ACUTE TARGET ORGAN TOXICITY:

Irritation of the eyes, mucous membranes, skin and respiratory tract may result from contact with liquid or vapor. If inhaled or ingested, product may cause C.N.S. depression.

##### CHRONIC TARGET ORGAN TOXICITY:

Inhalation, ingestion, or dermal contact of significant amounts of this product may cause C.N.S. depression.

##### REPRODUCTIVE AND DEVELOPMENTAL TOXICITY:

There are no known or reported effects on reproductive function or fetal development from exposure to this product.

Gamma butyrolactone has been tested for reproductive toxicity, and the results are the following:

Teratology (Sweden) at 1000 mg/kg/day (days 6-15): Negative

Teratology - rat: graded dose levels from 10-1000 mg/kg/day from day 5 through 15 of gestation: Negative

##### CARCINOGENICITY:

This product is not known or reported to be carcinogenic by any reference source including IARC, OSHA, NTP, or EPA.

Gamma-butyrolactone was tested in mice by oral administration,

subcutaneous injection and skin application and in rats by oral and subcutaneous administration. No carcinogenic effects were observed.

PROBIMIDE 287

JPE850910

PAGE 6

## MUTAGENICITY:

This product is not known or reported to be mutagenic.

## AQUATIC TOXICITY:

No data for this product. Individual constituents are as follows:

Gamma-butyrolactone:

Aquatic Toxicity Rating: 0 (96 hr. TLM > 1000 mg/l)

48 hr. LC 50 Minnow: 100-500 mg/l

## X. TRANSPORTATION

THIS MATERIAL IS NOT REGULATED AS A DOT HAZARDOUS MATERIAL.

## XI. SPILL &amp; LEAKAGE

FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC AT 800-424-9300.

REPORTABLE QUANTITY: (Per 40 CFR 302.4) Not Applicable

## SPILL MITIGATION PROCEDURES:

Evacuation procedures must be placed into effect. Evacuate all non-essential personnel. Hazardous concentrations in air may be found in local spill area and immediately downwind. Remove all sources of ignition. Stop source of spill as soon as possible and notify appropriate personnel.

AIR RELEASE: Vapors may be suppressed by the use of water fog or spray. Contain all liquid for treatment and/or disposal as a (potential) hazardous waste.

WATER RELEASE: This material is slightly soluble in water. Notify all downstream users of possible contamination. Divert water flow around spill if possible and safe to do so. Continue to handle as described in land spill.

LAND SPILL: Create a dike or trench to contain materials. Spill materials may be absorbed using sand, clay or commercial absorbent. Do not place spill materials back in their original containers. Containerize and label all spill materials properly. Decontaminate all clothing and the spill area using soap solution and flush with large amounts of water.

## SPILL RESIDUES:

Dispose of per guidelines under Section XII, WASTE DISPOSAL.

## PERSONAL PROTECTION FOR EMERGENCY SPILL AND FIRE-FIGHTING SITUATIONS:

Additional protective clothing must be worn to prevent personal contact with this material. Those items include but are not limited to: boots, gloves, impervious clothing, i.e., chemically impermeable suit.

Protection concerns must also address the potential of the physical characteristic of this product as combustible.

## XII. WASTE DISPOSAL

If this product becomes a waste, it DOES NOT meet the criteria of a



hazardous waste as defined under 40 CFR 261, in that it does not exhibit the characteristics of hazardous waste of Subpart C, nor is it listed as a hazardous waste under Subpart D.  
PROBIMIDE 287

JPE850910

PAGE 7

As a nonhazardous liquid waste, it should be disposed of in accordance with local, state and federal regulations by incineration.

CARE MUST BE TAKEN TO PREVENT ENVIRONMENTAL CONTAMINATION FROM THE USE OF THIS MATERIAL. THE USER OF THIS MATERIAL HAS THE RESPONSIBILITY TO DISPOSE OF UNUSED MATERIAL, RESIDUES AND CONTAINERS IN COMPLIANCE WITH ALL RELEVANT LOCAL, STATE AND FEDERAL LAWS AND REGULATIONS REGARDING TREATMENT, STORAGE AND DISPOSAL FOR HAZARDOUS AND NONHAZARDOUS WASTES.

#### XIII. ADDITIONAL REG STATUS

##### TOXIC SUBSTANCES CONTROL ACT:

The components of this product are listed on the Toxic Substance Control Act inventory.

##### SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT TITLE III: HAZARD CATEGORIES, PER 40 CFR 370.2:

###### HEALTH:

Immediate (Acute)

###### PHYSICAL:

None

##### EMERGENCY PLANNING AND COMMUNITY RIGHT TO KNOW, PER 40 CFR 355, APP. A: EXTREMELY HAZARDOUS SUBSTANCE - THRESHOLD PLANNING QUANTITY:

None Established

##### SUPPLIER NOTIFICATION REQUIREMENTS, PER 40 CFR 372.45:

None Established

#### XIV. ADDITIONAL INFORMATION

MSDS REVISION STATUS: Flash point, flammability data, transportation information and Sections 1 and XIII revised

#### XV. MAJOR REFERENCES

1. ACGIH Guide to Protective Clothing. Cincinnati, OH: American Conference of Government Industrial Hygienists, 1987.
2. ANSI Z88.2. Recommended Practice for Respiratory Protection. American National Standards Institute, New York, NY.
3. Baker, C. J., The Fire Fighter's Handbook of Hazardous Materials, 4th Ed., Indiana: Maltese Enterprises, Inc., 1984.
4. Bretherick, L., Handbook of Reactive Chemical Hazards, 3rd Ed., Boston, MA: Butterworths, 1985.
5. Casarett, L. and J. Doull, Eds., Toxicology: The Basic Science of Poisons, 3rd Ed., New York: Macmillan Publishing Co., Inc. 1986.
6. CERIS (Chemical Emergency Response Information System) On Line Database. Association of American Railroads.
7. Chemical Degradation and Permeation Database and Selection Guide for Resistant Protective Materials. Austin, TX.
8. Clayton, G. and F. Clayton, Eds., Patty's Industrial Hygiene and Toxicology, Vol. 2A-C 3rd Ed., New York: John Wiley & Sons, 1981-1982.
9. Code of Federal Regulations, Titles 21, 29, 40 and 49. Washington,

DC: U.S. Government Printing Office.

10. Ellenhorn, Matthew J. and Donald G. Barceloux, Medical Toxicology: Diagnosis and Treatment of Human Poisoning. Elsevier Science

PROBIMIDE 287

JPE850910

PAGE 8

- Publishing Co., Inc., N.Y., N.Y., c. 1988.
11. Fire Protection Guide on Hazardous Materials, 9th Ed., National Fire Protection Association, Batterymarch Park, Quincy, MA, 1986.
12. Cosselin, R., et al., Cosselin-Clinical Toxicology of Commercial Products, 5th Ed., Baltimore: Williams and Wilkins, 1984.
13. Grant, W. Morton, M.D., Toxicology of the Eye, 2nd Ed., Springfield, IL: Charles C. Thomas, 1974.
14. Hazardline, Occupational Health Services Inc., New York, NY.
15. IARC Monogram on the Evaluation of Carcinogenic Risk of Chemicals to Man., Geneva: World Health Organization, International Agency for Research on Cancer.
16. Longa, R., The Sigma Aldrich Library of Chemical Safety Data, 1st Ed., Milwaukee, WI: Sigma-Aldrich Corporation, 1985.
17. Lewis, R. and D. Sweet, Eds., Registry of Toxic Effects of Chemical Substances, 1985-1986, Washington, DC: U.S. Government Printing Office, 1987.
18. Medline, U.S. National Library of Medicine, Bethesda, MD.
19. McKee, Jack E. and Harold W. Wolf, Eds., Water Quality Criteria, NTIS PB Report, (PB-82-188244), 2nd Ed., Springfield, VA: National Technical Information Services, 1963.
20. NIOSH Pocket Guide to Chemical Hazards, Washington, DC: U.S. Government Printing Office, 1990.
21. Olin Respiratory Protection Manual.
22. Sax, N. Irving, Dangerous Properties of Hazardous Materials 6th Ed., New York: Van Nostrand Reinhold Company, 1984.
23. Threshold Limit Values and Biological Exposure Indices for 1989-90, Cincinnati, OH: American Conference of Government Industrial Hygienists, 1989.
24. Toxic Substances Control Act Inventory, Washington, DC: U.S. Government Printing Office, 1986.
25. Sittig, Marshall, Handbook of Toxic and Hazardous Chemicals and Carcinogens, 2nd Ed., Noyes Publications, Park Ridge, NJ, 1985.
26. Chemical Hazards Response Information System (CHRIS), Vol. II, U.S. Coast Guard, Washington, D.C., 1984.

THE INFORMATION IN THIS MATERIAL SAFETY DATA SHEET SHOULD BE PROVIDED TO ALL WHO WILL USE, HANDLE, STORE, TRANSPORT, OR OTHERWISE BE EXPOSED TO THIS PRODUCT. THIS INFORMATION HAS BEEN PREPARED FOR THE GUIDANCE OF PLANT ENGINEERING, OPERATIONS AND MANAGEMENT AND FOR PERSONS WORKING WITH OR HANDLING THIS PRODUCT. OLIN BELIEVES THIS INFORMATION TO BE RELIABLE AND UP TO DATE AS OF THE DATE OF PUBLICATION, BUT MAKES NO WARRANTY THAT IT IS. ADDITIONALLY, IF THIS MATERIAL SAFETY DATA SHEET IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT OLIN AT THE PHONE NUMBER LISTED BELOW TO MAKE CERTAIN THAT THIS SHEET IS CURRENT.

OLIN MSDS CONTROL GROUP  
Olin Corporation  
120 Long Ridge Road  
Stamford, CT 06904

Phone Number: (203) 356-3449