

Ransom & Randolph

1. Product and Company Identification

<i>Product Name</i> R&R® Wash-N-Etch	<i>MSDS Code Number</i> 315
<i>Trade Name & Synonyms</i>	<i>Date of Last Revision</i> 06/06
<i>Chemical Name</i>	<i>Manufacturer</i> Ransom & Randolph
<i>C.A.S. Number</i>	<i>Address</i> 3535 Briarfield Blvd, Maumee, OH 43537
<i>Grades or Minor Variant Identities</i>	<i>Information Telephone Number</i> 419/865-9497 FAX 419/865-9997
<i>Product Use</i>	<i>Emergency Telephone Number</i> 419/865-9497

2. Composition of Ingredients

<u>Hazardous Components</u>	<u>C.A.S. Number</u>	<u>%</u>
d-Limonene	5989-27-5	10 - 50
2-(2-Butoxyethoxy)	112-34-5	<20
Diethanolamine	111-42-2	<5

3. Hazardous Identification*Emergency Overview*

<i>Routes of Exposure</i>	<i>Signs & Symptoms</i>	<i>Single, Repeated, or Lifetime Exposure</i>	<i>Severity (Mild, Moderate, Severe)</i>	<i>Acute and Chronic Health Effect(s)</i>	<i>Target Organ(s)</i>
<i>Eye</i>	Vapors uncomfortable	Irritating, painful burning or stinging of eyes and list, watering of eyes and inflammation of conjunctiva			
<i>Skin</i>	Irritation	Defatting and drying of skin, resulting in irritation and dermatitis			
<i>Inhalation</i>	Irritation to nose, throat, respiratory tract	Headache and nausea in areas of poor ventilation			
<i>Ingestion</i>	Large amounts cause gastric disturbances with possible nausea and vomiting				Liver, kidney, blood
<i>Other</i>					

<i>Medical Conditions Aggravated by Exposure</i>			
<i>Carcinogenicity (IARC, NTP)</i>		None	
<i>Potential Environmental Effects</i>			
4. First Aid Measures			
<i>Routes of Exposure</i>	<i>First Aid Instructions</i>	<i>Immediate Medical Attention</i>	<i>Delayed Effects</i>
<i>Eye</i>			
<i>Skin</i>	Immediately wash skin with large amounts of soap and water. Remove contaminated clothing and shoes; wash before reuse.	Get medical attention if irritation persists after washing.	
<i>Inhalation</i>			
<i>Ingestion</i>	If adverse effects such as dizziness, nausea, or irritation are noted, move person to fresh air.	If not breathing, give artificial respiration. Call a physician or emergency medical facility immediately!	
<i>Other</i>	Eyes: Flush immediately with water for at least 15 minutes.	If irritation persists, call a physician.	
<i>Note to Physicians (Treatment, Testing, and Monitoring)</i>			
5. Fire and Explosion Data			
<i>Flashpoint: (Method)</i> 125°F (PMCC)	<i>Flammable (Explosive) Limits in Air</i> LEL: N/E UEL: N/E		<i>Autoignition Temperature:</i>
<i>Flame Propagation or Burning Rate (for solids):</i>	<i>Properties Contributing to Fire Intensity</i>	<i>Flammability Classification NFDA Rating:</i>	<i>Other</i>
<i>Extinguishing Media</i> Carbon dioxide, dry chemical, foam or water fog		<i>Extinguishing Media to Avoid</i>	
<i>Protection and Procedures for Firefighters:</i> Firefighters should wear a self-contained breathing apparatus with a full facepiece operated in pressure demand or other positive pressure mode, and protective clothing.			
<i>Unusual Fire and Explosion Hazards:</i> Vapors are heavier than air and may travel along the ground or be moved by ventilation and ignited at locations distant from handling point.			

6. Accidental Release Measures

Containment Techniques

Spill/Leak Clean-Up Procedures and Equipment

Evacuation Procedures

Special Instructions

If material is spilled, eliminate all ignition sources. Keep people away. Recover free product. Add sand, earth or other suitable absorbent to spill area; place in closed containers for disposal. Ventilate confined spaces. Keep product out of sewers and water courses by diking or impounding. Advise authorities if product has entered or may enter sewers, watercourses, or extensive land areas. Continue to observe precautions for volatile, combustible vapors from absorbed material.

Reporting Requirements

7. Handling and Storage

Handling Practices and Warnings

Avoid contact with skin and eyes; wash thoroughly after handling. Avoid breathing vapor; use with adequate ventilation. CAUTION! Do not use cutting or welding torches on containers, even when empty. Containers, even those that have been emptied, will retain product residue and vapors. Do not reuse container without recycling or reconditioning. Handle empty containers as if they were full.

Storage Practices and Warnings

KEEP FROM FREEZING! Store in dry location at room temperature. Keep container closed and maintain all original markings and labels. Do not use aluminum or galvanized steel for storage, pumping or transfer.

8. Exposure Controls/Personal Protection

Ventilation

Other Engineering Controls

Routes of Entry:

Personal Protective Equipment (PPE) for Normal Use:

PPE for Emergencies:

Eye/Face

Safety glasses with side shields. Do NOT wear contact lenses. Chemical goggles and/or faceshield should be worn where splashing is possible.

Skin

Wear chemical resistant gloves.

Inhalation

NIOSH-certified respirator where vapor or mist concentrations are present.

General Hygiene Considerations and Work Practices

Eye wash and safety shower should be readily available. Wear a chemical resistant apron and boots where splashing is possible.

Protective equipment and clothing should be selected, used and maintained according to applicable standards and regulations. For further information, contact the clothing or equipment manufacturer. Do not eat, drink, or smoke while using this product. Wash hands prior to eating, drinking, smoking, or using restrooms. Cleanse skin thoroughly after contact, before breaks and meals, and at the end of the work shift.

Other Protective Measures and Equipment

Use NIOSH/MSHA approved respirator where high vapor or mist concentrations are present. Special ventilation is suggested at points where vapors can be expected to escape to the workplace air. Mechanical ventilation should be sufficient to maintain exposure levels below exposure limits.

9. Physical and Chemical Characteristics

<i>Appearance</i> Pale yellow liquid		<i>Odor</i> Citrus odor
<i>Normal Physical State:</i> Liquid X Gas Solid		<i>Boiling Point</i> 212°F (initial) <i>Melting Point</i> <i>Freezing Point</i>
<i>Specific Gravity or Density (H₂O=1)</i> 0.94-0.95	<i>Solubility in Water</i> Appreciable	<i>pH</i> 9.0-10.0
<i>Vapor Pressure (mm Hg.)</i> N/E	<i>Vapor Density (AIR = 1)</i> >2.3	<i>Evaporation Rate (Butyl Acetate=1)</i>
<i>Other</i> Theoretical VOC (>0.1 mmHg @ 20°C) = 2.2 – 2.5 lbs./gal Analytical VOC (EPA method 24) = 3.4 – 3.6 lbs./gal		

10. Stability and Reactivity

<i>Incompatibility (Materials to Avoid)</i> Strong oxidizing agents and acidic agents, including acidic clays; D-Limonene reacts explosively with iodine pentafluoroethylene.			
<i>Hazardous Products Produced During Decomposition</i> Nitrogen oxides, unidentified organic compounds, ammonia vapors, and oxides of carbon.			
<i>Hazardous Polymerization?</i>	<i>May Occur</i>	<i>May Not Occur</i> Yes	<i>Conditions to Avoid</i> COMBUSTIBLE! Keep from heat, sparks, or open flame.
<i>Stability?</i> Stable	<i>Stable</i> Yes	<i>Unstable</i>	<i>Conditions to Avoid</i>

11. Toxicological Information

Toxicity Data, Epidemiology Studies, Carcinogenicity, Neurological Effects, Genetic Effects, Reproductive Effects, or Structure Activity Data

ACUTE TOXICITY – YES

Oral LD50 (rat) >5g/kg Eye irritation (rabbit): Severely irritating.
Dermal LD50 (rabbit) >5g/kg Dermal irritation (rabbit): Severely irritating.
Oral TDLO (mouse) = 67 mg/kg/39w-l:ETA
IPR TDLO (mouse) = 4800 mg/kg/8w-l:ETA

CHRONIC EFFECTS: Prolonged or repeated exposure can cause drying, defatting, and dermatitis of skin. d-limonene is NOT listed as carcinogenic by OSHA, NTP, IARC or ACGIH. FDA and WHMIS list d-limonene as GRAS –“generally recognized as safe”. [5, 2-3, 11-031197]; 15, 3-3, 11-0198
Ethanol, 2-(2-butoxyethoxy) [CASRN 000112-34-5]

ACUTE TOXICITY

Oral LD50 (rat) = 5.1-5.7 g/kg Eye irritation: Moderate [rabbit]
Oral LD50 (mouse) = 2.4 g/kg Skin irritation: Slight [rabbit]
Dermal LD50 (rabbit) ~ 4 g/kg Inhalation LC50 (rat) >18 ppm; 7 hours

Other Information: Kidney effects in male rats were observed in laboratory animals exposed to this material. Effects were consistent with male rat hyaline droplet nephropathy, which is of questionable significance to human health.

Mutagenicity: Animal mutagenicity studies were negative. In vitro mutagenicity studies were negative in some cases and positive in other cases. [3-3, 3, 1, 6, 4-121600], [18, 7-1, 3, 6, 4-020901], & [4, 16-6, 4, 3, 1-022001]
Diethanolamine:

TOXICITY DATA: Recently conducted National Toxicology Program (NTP) subchronic toxicity studies with diethanolamine (DEA) in rats and mice suggest that the kidney, liver, and blood are potential target systems for DEA toxicity, following both oral and dermal exposures. In addition, effects in the brain and spinal cord of rats, and in the hearts of mice were observed only at extremely high dosages of DEA. Effects on several other tissues were reported, although these occurred only at dose levels which caused severe debilitation of the animals, and were considered secondary effects (not directly caused by DEA) by the NTP peer review pathology group. Furthermore, most of the effects reported in these studies were observed in only one of the species tested, and clear dose response trends were not always evident in treated groups, making the relevance of these findings across species questionable. NTP has initiated chronic studies in rats and mice by the dermal route of exposure. These studies may clarify the results of the subchronic studies as well as provide information on the potential carcinogenicity of DEA. Preliminary findings from a developmental toxicity study in the rat with dermal application of DEA has shown that this chemical has a potential to cause developmental delay in the fetus. The effect seen was a general delay in ossification (i.e., bone substance formation) in the skull at doses shown to cause severe maternal toxicity. A definitive developmental study is currently underway to clarify the above findings. [7, 20-H, F, A, J, J, 19, I, F,-070194]

12. Ecological Information

Toxicity, Environmental Fate, Physical/Chemical Data, or Other Data Supporting Environmental Hazard Statements

d-Limonene [CASRN 005989-27-5]

Ecotoxicological Information: Product may be toxic to aquatic organisms. [5, 2-3, 11-031197]

Ethanol, 2-(2-butoxyethoxy) [CASRN 000112-34-5]

ECOTOXICITY

LC50 (Poecilia reticulata) = 1150 mg/L LC50 (Lepomis macrochirus) = 1300 mg/L LC50 (Leuciscus idus) = 18805-2304 mg/L LC50 (Menidia beryllina) = 2000 mg/L
LC50 (Carassius auratus) = 2700 mg/L LC50 (Daphnia magna) = 2850 mg/L
LC50 (Notropis atherinoides) >500 mg/L Growth inhibition IC50 (bacteria) = 255 mg/L

MOVEMENT & PARTITIONING: Biodegradation under aerobic static laboratory conditions is high (BOD20 or BOD28/ThOD greater than 40%). Degradation is expected in the atmospheric environment within minutes to hours. 5-Day biochemical oxygen demand (BOD5) is 0.05 p/p. 10-(BOD20) is 1.08 p/p. Theoretical oxygen demand (ThOD) is calculated to be 2.17 p/p. Biodegradation rate may increase in soil and/or water with acclimation. [3-3, 3, 1, 6, 4-121600]

13. Disposal Considerations

Regulations

In accordance with all federal, state and local requirements. RCRA Hazard Waste #D001

Properties (Physical/Chemical) Affecting Disposal

14. Transport Information

Regulated for shipping?

Yes No

Proper Shipping Name

Packing Group

Do changes in quality, packaging, or shipment method change product classification?

Yes No

Hazard Class

Identification Number

Other

Hazardous Material Description:

Domestic ground non-bulk: NOT REGULATED

Domestic ground bulk: COMBUSTIBLE LIQUID, N.O.S., NA1993, PG III (RQ – FLAMMABLE LIQUID, N.O.S., 3, UN 1993, PG III (D-LIMONENE)

International: FLAMMABLE LIQUID, N.O.S., 3, UN1993, PG III (D-LIMONENEN)

15. Regulator Information

Federal Regulations

SARA 313 Information

This product contains the following chemical(s) above deminis concentrations and may be subject to reporting under section 313:

Reportable Category: Certain glycol ethers, <20%.
Diethanolamine, CAS# 111-42-2, <5%

International Regulations

Other

16. Other Information

The information set forth herein has been gathered from standard reference materials and/or Ransom & Randolph Company test data and is, to the best knowledge and belief of Ransom & Randolph Company accurate and reliable. Such information is offered solely for your consideration, investigation and verification and it is not suggested or guaranteed that the hazard precautions or procedures mentioned are the only ones which exist. Ransom & Randolph Company makes no warranties, express or implied, with respect to the use of such information or the use of the specific material identifies here in combination with any other material or process, and assumes no responsibility therefore.