1. Identification

Material name: RER 600
Issue date: 17-June-2014
Revision date: 01-December-2014
Supersedes date: 17-June-2014
Other means of identification:
Spec ID: 100000000119
Synonyms: 1-Methoxy-2-propanol acetate; Propylene glycol monomethyl ether acetate (PGMEA)
Recommended use: Solvent for use in the semiconductor industry: Industrial use in coatings; Industrial use in cleaning agents
Recommended restrictions: None known.
Supplier information:
FUJIFILM Electronic Materials U.S.A., Inc.
80 Circuit Drive
North Kingstown RI 02852
Transportation Emergency:
FOR ALL TRANSPORTATION ACCIDENTS, CALL CHEMTREC: 1-800-424-9300
Medical Emergency (24HR):
FOR ANY HEALTH & MEDICAL EMERGENCY, 24 HOURS /7 DAYS CALL: 1-800-365-8951
Non-emergency Telephone:
FOR ALL SDS REQUESTS & QUESTIONS, CALL CUSTOMER SERVICE: 1-800-553-6546
SDS file: 11066_US_EN_V2.0
Replaces file: 11066_US_EN_V1.0

2. Hazard(s) identification

Physical hazards: Flammable liquids Category 3
Health hazards:
Reproductive toxicity Category 1B
Specific target organ toxicity, single exposure Category 3 narcotic effects
OSHA defined hazards: Not classified.
Label elements:

Signal word: Danger
Hazard statement: Flammable liquid and vapor. May damage the unborn child. May cause drowsiness or dizziness.
Precautionary statement:
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. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting equipment. Use only non-sparking tools. Take precautionary measures against static discharge. Wear protective gloves/protective clothing/eye protection/face protection. Avoid breathing mist/vapors/spray. Use only outdoors or in a well-ventilated area.
Response: If exposed or concerned: Get medical advice/attention. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell. In case of fire: Use foam, carbon dioxide, dry powder or water fog for extinction.
Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC): None known.
3. Composition/information on ingredients

<table>
<thead>
<tr>
<th>Substance</th>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
<th>Common name and synonyms</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Methoxy-1-methylethyl acetate (1-Methoxy-2-propanol acetate)</td>
<td>108-65-6</td>
<td>99.5-100</td>
<td>99.5-100</td>
<td>1-Methoxy-2-propanol acetate</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Impurities</th>
<th>Chemical name</th>
<th>CAS number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Methoxypropanol acetate</td>
<td>70657-70-4</td>
<td>&lt; 0.3</td>
<td>&lt; 0.3</td>
</tr>
</tbody>
</table>

Composition comments
All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First-aid measures

**Inhalation**
Move injured person into fresh air and keep person calm under observation. Get medical attention if any discomfort continues.

**Skin contact**
Remove contaminated clothes and rinse skin thoroughly with water for at least 15 minutes. If irritation occurs, get medical assistance.

**Eye contact**
Immediately flush with plenty of water for up to 15 minutes. Remove any contact lenses and open eyelids wide apart. Get medical attention if irritation develops and persists.

**Ingestion**
Rinse mouth thoroughly with water and give large amounts of milk or water, if person is conscious. Only induce vomiting at the instruction of medical personnel. Get medical attention if any discomfort continues.

**Most important symptoms/effects, acute and delayed**
Inhalation: Vapors may cause drowsiness and dizziness. Eye contact: May cause redness and pain. Skin contact: Defats the skin.

**Indication of immediate medical attention and special treatment needed**
Treat symptomatically.

**General information**
Thermal burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital.

5. Fire-fighting measures

**Suitable extinguishing media**
The product is flammable, and heating may generate vapors which may form explosive vapor/air mixtures. Extinguish with foam, carbon dioxide, dry powder or water fog.

**Unsuitable extinguishing media**
None.

**Specific hazards arising from the chemical**
During fire, gases hazardous to health may be formed. Solvent vapors may form explosive mixtures with air.

**Special protective equipment and precautions for firefighters**
Selection of respiratory protection for firefighting: follow the general fire precautions indicated in the workplace. Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

**Fire fighting equipment/instructions**
Use standard firefighting procedures and consider the hazards of other involved materials. Containers close to fire should be removed or cooled with water.

6. Accidental release measures

**Personal precautions, protective equipment and emergency procedures**
Extinguish all ignition sources. Avoid sparks, flames, heat and smoking. Ventilate the area. Avoid inhalation of vapors/spray and contact with skin and eyes. Wear suitable protective clothing. See Section 8 of the SDS for Personal Protective Equipment.

**Methods and materials for containment and cleaning up**
Remove sources of ignition. Absorb spillage with non-combustible, absorbent material. For waste disposal, see Section 13 of the SDS.

**Environmental precautions**
Avoid discharge into drains, water courses or onto the ground unless authorized by permit.

7. Handling and storage

**Precautions for safe handling**
Local exhaust is recommended. Pregnant women should not work with the product, if there is the least risk of exposure. Avoid inhalation of vapors and spray mist and contact with skin and eyes. Risk of contact: Wear approved safety goggles. Wear protective gloves and appropriate clothing to prevent skin contact. The product is flammable, and heating may generate vapors which may form explosive vapor/air mixtures. Do not smoke and do not spray near an open flame or other sources of ignition. Vapors are heavier than air and may travel along the floor and in the bottom of containers. Vapors may be ignited by a spark, a hot surface or an ember. Take precautionary measures against static discharges. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities

Follow rules for flammable liquids. Keep away from heat, sparks and open flame. Do not store near heat sources or expose to high temperatures. Store in closed original container in a dry place. Store away from incompatible materials.

8. Exposure controls/personal protection

Occupational exposure limits

US. Workplace Environmental Exposure Level (WEEL) Guides

<table>
<thead>
<tr>
<th>Components</th>
<th>Type</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-Methoxy-1-methylethyl acetate (1-Methoxy-2-propanol acetate) (CAS 108-65-6)</td>
<td>TWA</td>
<td>50 ppm</td>
</tr>
</tbody>
</table>

Biological limit values

No biological exposure limits noted for the ingredient(s).

Exposure guidelines

US - California OELs: Skin designation

2-Methoxy-1-methylethyl acetate (1-Methoxy-2-propanol acetate) (CAS 108-65-6)

Can be absorbed through the skin.

Appropriate engineering controls

Use explosion-proof equipment. Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of vapors. Provide easy access to water supply and eye wash facilities.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear approved safety goggles.

Skin protection

Hand protection

Wear protective gloves impervious to the chemicals in use.

Other

Also wear appropriate clothing to prevent any possibility of skin contact. Suitable items can be recommended by the protective equipment supplier or by a qualified industrial hygienist.

Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. In the United States of America, if respirators are used, a program should be instituted to assure compliance with OSHA Standard 1910.134. Use a NIOSH/MSHA approved air purifying respirator as needed to control exposure. Consult with respirator manufacturer to determine respirator selection, use, and limitations. Use positive pressure, air-supplied respirator for uncontrolled releases or when air purifying respirator limitations may be exceeded. Follow respirator protection program requirements (OSHA 1910.134 and ANSI Z88.2) for all respirator use.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Observe any medical surveillance requirements.

9. Physical and chemical properties

Appearance

Physical state

Liquid.

Form

Liquid.

Color

Colorless.

Odor

Sweet, Mild solvent.

Odor threshold

No data available.

pH

Not applicable.

Melting point/freezing point

No data available.

Initial boiling point and boiling range

302 °F (150 °C)

Flash point

116.6 °F (47.0 °C) Setaflash Closed Cup

Evaporation rate

0.3 (n-Butyl acetate = 1)

Flammability (solid, gas)

Not applicable.

Upper/lower flammability or explosive limits

| Flammability limit - lower (%) | 1.3 |
| Flammability limit - upper (%) | 10 |

Vapor pressure

3.7 mm Hg (20°C)

Vapor density

4.6 (Air = 1)
Relative density 0.966

Solubility (water) 18.5 % (20°C)

Partition coefficient (n-octanol/water) 3.6/0.56

Auto-ignition temperature 669.2 °F (354 °C)

Decomposition temperature No data available.

Viscosity 1.07 mm²/s (77°F)

Other information
Density 0.996 g/cc
Molecular weight 132
Percent volatile 100 %

10. Stability and reactivity
Chemical stability Stable under normal temperature conditions.
Possibility of hazardous reactions Will not occur.
Conditions to avoid Heat, sparks, flames.
Incompatible materials Strong oxidizing agents. Strong acids.
Hazardous decomposition products At elevated temperatures: Carbon dioxide. Carbon monoxide.

11. Toxicological information
Information on likely routes of exposure

Inhalation Vapors may irritate throat and respiratory system and cause coughing. May cause drowsiness or dizziness.

Skin contact May be absorbed through the skin.

Eye contact May cause eye irritation.

Ingestion May cause discomfort if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics
Inhalation: Vapors may cause drowsiness and dizziness. Eye contact: May cause redness and pain. Skin contact: Defats the skin.

Information on toxicological effects

Acute toxicity

Components Species Test Results

2-Methoxy-1-methylethyl acetate (1-Methoxy-2-propanol acetate) (CAS 108-65-6)

Acute
Dermal Rabbit > 5000 mg/kg
Inhalation Rat > 3000 ppm, 6 hours
Oral Rat 8532 mg/kg

Skin corrosion/irritation May be absorbed through the skin.

Serious eye damage/eye irritation May cause eye irritation.

Respiratory or skin sensitization

Respiratory sensitization No data available.

Skin sensitization Not a skin sensitizer.

Germ cell mutagenicity No data available.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)
Not listed.

Reproductive toxicity
2-Methoxypropanol acetate has been shown to cause effects on the unborn fetus in animals.

Specific target organ toxicity - single exposure
May cause drowsiness or dizziness.
Specific target organ toxicity - repeated exposure
No data available.

Aspiration hazard
Not classified.

Chronic effects
Organic solvents may be absorbed into the body by inhalation and cause permanent damage to the nervous system, including the brain.

12. Ecological information

Ecotoxicity
The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components | Species | Test Results
--- | --- | ---
2-Methoxy-1-methylethyl acetate (1-Methoxy-2-propanol acetate) (CAS 108-65-6) | Aquatic Crustacea | LC50 Daphnia 408 mg/l, 48 Hours
Fish | LC50 Fathead minnow (Pimephales promelas) 161 mg/l, 96 Hours

Persistence and degradability
No data available.

Bioaccumulative potential
No data available.

Mobility in soil
No data available.

Mobility in general
This organic solvent will evaporate easily from all surfaces.

Other adverse effects
The product is a volatile organic compound which has a photochemical ozone creation potential.

13. Disposal considerations

Disposal instructions
Disposal recommendations are based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

Hazardous waste code
D001: Waste Flammable material with a flash point <140 °F

Waste from residues / unused products
Dispose of waste and residues in accordance with local authority requirements.

Contaminated packaging
Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT
UN number | UN3272
UN proper shipping name | Esters, n.o.s. (1-methoxy-2-propanol acetate)
Transport hazard class(es)
Class | 3
Subsidiary risk | -
Label(s) | 3
Packing group | III
Environmental hazards | No
Marine pollutant | Special precautions for user
Read safety instructions, SDS and emergency procedures before handling.
This material can be reclassified as a combustible liquid and is considered not regulated by ground transport when packaged in non-bulk packaging (<119 G). This exception is found in 49 CFR 173.150(f).
Special provisions
B1, IB3, T4, TP1, TP29
Packaging exceptions
150
Packaging non bulk
203
Packaging bulk
242

IATA
UN number | UN3272
UN proper shipping name | Esters, n.o.s. (1-Methoxy-2-propanol acetate)
Transport hazard class(es)
Class | 3
Subsidiary risk | -
Label(s) | 3
Packing group | III
Environmental hazards | No
ERG Code 3L
Special precautions for user
Read safety instructions, SDS and emergency procedures before handling.

IMDG
UN number | UN3272
UN proper shipping name | Esters, n.o.s. (1-Methoxy-2-propanol acetate)
Transport hazard class(es)
Class 3
Subsidiary risk -
Label(s) 3
Packing group III
Environmental hazards
Marine pollutant No
EmS F-E, S-D
Special precautions for user
Read safety instructions, SDS and emergency procedures before handling.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

15. Regulatory information

US federal regulations
This product is hazardous according to OSHA 29 CFR 1910.1200.
TSCA Section 4(a) Final Test Rules & Testing Consent Orders: Not regulated.
TSCA Section 5(e) PMN-Substance Consent Orders: Not regulated.

Drug Enforcement Administration (DEA). List 1(i), Precursor Chemicals (21 CFR 1310.02(a) and 1310.04(f)(1))
Not listed.

TSCA Section 5(a)(2) Final Significant New Use Rules (SNURs) (40 CFR 721, Subpt. E)
Not regulated.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)
Not regulated.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List
Not regulated.

CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)
None

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

Section 302 extremely hazardous substance (40 CFR 355, Appendix A)
No

Section 311/312 (40 CFR 370)
Yes

Drug Enforcement Administration (DEA) (21 CFR 1308.11-15)
Not controlled

Inventory status

Country(s) or region
Australia
Canada
Canada
New Zealand
Philippines
United States & Puerto Rico

Inventory name
Australian Inventory of Chemical Substances (AICS)
Domestic Substances List (DSL)
Non-Domestic Substances List (NDSL)
New Zealand Inventory
Philippine Inventory of Chemicals and Chemical Substances (PICCS)
Toxic Substances Control Act (TSCA) Inventory

On inventory (yes/no)*
Yes
Yes
No
Yes
Yes
Yes

*All ingredients are TSCA compliant.

State regulations
This product does not contain a chemical known to the State of California to cause cancer, birth defects or other reproductive harm.

US. Massachusetts RTK - Substance List
Not regulated.

US. New Jersey Worker and Community Right-to-Know Act
Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law
Not listed.
16. Other information, including date of preparation or last revision

Further information
HMIS® is a registered trade and service mark of the NPCA.
G - Safety Glasses, Gloves, Vapor Respirator

HMIS® ratings
Health: 1*
Flammability: 2
Physical hazard: 0
Personal protection: G

NFPA ratings
Health: 1
Flammability: 2
Instability: 0

List of abbreviations
LD50: Lethal Dose, 50%
LC50: Lethal Concentration, 50%

Disclaimer
THIS SAFETY DATA SHEET (SDS) HAS BEEN PREPARED IN COMPLIANCE WITH THE FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THE INFORMATION IN THIS SDS 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. FUJIFILM PLANAR SOLUTIONS 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 SDS IS MORE THAN THREE YEARS OLD, YOU SHOULD CONTACT FUJIFILM PLANAR SOLUTIONS AT THE PHONE NUMBER 1-800-553-6546 (CUSTOMER SERVICE) TO MAKE CERTAIN THAT THIS DOCUMENT IS CURRENT.

This SDS contains revisions in the following section(s):
1, 2, 3, 7, 8, 9, 11, 15, 16.

SDS file
11066_US_EN_V2.0

Replaces file
11066_US_EN_V1.0