

JM TPO Low VOC Membrane Adhesive

Version 0.1

Revision Date 01/08/2015

Print Date 01/13/2015

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Trade name : JM TPO Low VOC Membrane Adhesive

Manufacturer or supplier's details

Company : Johns Manville
Address : P.O. Box 5108
Denver, CO USA 80127

Telephone : 303-978-2000 8:00AM-5:00PM M-F
Emergency telephone : 1-800-424-9300 (Chemtrec, in English)
number

Prepared by : productsafety@jm.com

SECTION 2. HAZARDS IDENTIFICATION**GHS Classification**

Flammable liquids : Category 2

Eye irritation : Category 2A

Reproductive toxicity : Category 2

Specific target organ toxicity - single exposure : Category 3 (Central nervous system)

Specific target organ toxicity - repeated exposure : Category 2 (Central nervous system)

Acute toxicity (Inhalation) : Category 3

GHS Label element

Hazard pictograms



Signal word : Danger

Hazard statements : H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H361 Suspected of damaging fertility or the unborn child.
H373 May cause damage to organs through prolonged or repeated exposure.
H331 Toxic if inhaled.
H335 May cause respiratory irritation.

JM TPO Low VOC Membrane Adhesive

Version 0.1

Revision Date 01/08/2015

Print Date 01/13/2015

Precautionary statements : **Prevention:**

P201 Obtain special instructions before use.

P202 Do not handle until all safety precautions have been read and understood.

P210 Keep away from heat/sparks/open flames/hot surfaces. - No smoking.

P233 Keep container tightly closed.

P240 Ground/bond container and receiving equipment.

P241 Use explosion-proof electrical/ ventilating/ lighting/ equipment.

P242 Use only non-sparking tools.

P243 Take precautionary measures against static discharge.

P260 Do not breathe dust/ fume/ gas/ mist/ vapours/ spray.

P264 Wash skin thoroughly after handling.

P271 Use only outdoors or in a well-ventilated area.

P280 Wear protective gloves/ eye protection/ face protection.

P281 Use personal protective equipment as required.

Response:

P303 + P361 + P353 IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.

P304 + P340 + P312 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.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313 If eye irritation persists: Get medical advice/ attention.

P370 + P378 In case of fire: Use dry sand, dry chemical or alcohol-resistant foam for extinction.

P308 + P313 IF exposed or concerned: Get medical advice/ attention.

Storage:

P403 + P233 Store in a well-ventilated place. Keep container tightly closed.

P405 Store locked up.

Disposal:

P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous components

| Chemical Name | CAS-No. | Concentration (%) |
|--------------------|-----------|-------------------|
| tert-butyl acetate | 540-88-5 | >= 50 - < 70 |
| acetone | 67-64-1 | >= 20 - < 30 |
| toluene | 108-88-3 | >= 5 - < 10 |
| magnesium oxide | 1309-48-4 | >= 1 - < 5 |
| ethylbenzene | 100-41-4 | >= 0.1 - < 1 |

JM TPO Low VOC Membrane Adhesive

Version 0.1

Revision Date 01/08/2015

Print Date 01/13/2015

SECTION 4. FIRST AID MEASURES

- General advice : Move out of dangerous area.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.
- If inhaled : Consult a physician after significant exposure.
If unconscious place in recovery position and seek medical advice.
- In case of skin contact : If skin irritation persists, call a physician.
If on skin, rinse well with water.
If on clothes, remove clothes.
- In case of eye contact : Remove contact lenses.
Immediately flush eye(s) with plenty of water.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.
- If swallowed : Keep respiratory tract clear.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital.

SECTION 5. FIREFIGHTING MEASURES

- Suitable extinguishing media : Alcohol-resistant foam
Carbon dioxide (CO₂)
Dry chemical
- Unsuitable extinguishing media : High volume water jet
- Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.
- Hazardous combustion products : No hazardous combustion products are known
- Specific extinguishing methods : Standard procedure for chemical fires.
- Further information : Standard procedure for chemical fires.
Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.
For safety reasons in case of fire, cans should be stored separately in closed containments.
Use a water spray to cool fully closed containers.
- Special protective equipment for firefighters : Wear self-contained breathing apparatus for firefighting if necessary.

JM TPO Low VOC Membrane Adhesive

Version 0.1

Revision Date 01/08/2015

Print Date 01/13/2015

SECTION 6. ACCIDENTAL RELEASE MEASURES

- Personal precautions, protective equipment and emergency procedures : Use personal protective equipment.
 Ensure adequate ventilation.
 Remove all sources of ignition.
 Evacuate personnel to safe areas.
 Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas.
- Environmental precautions : Prevent product from entering drains.
 Prevent further leakage or spillage if safe to do so.
 If the product contaminates rivers and lakes or drains inform respective authorities.
- Methods and materials for containment and cleaning up : Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

SECTION 7. HANDLING AND STORAGE

- Advice on safe handling : Avoid formation of aerosol.
 Do not breathe vapours/dust.
 Avoid exposure - obtain special instructions before use.
 Avoid contact with skin and eyes.
 For personal protection see section 8.
 Smoking, eating and drinking should be prohibited in the application area.
 Take precautionary measures against static discharges.
 Provide sufficient air exchange and/or exhaust in work rooms.
 Open drum carefully as content may be under pressure.
 Dispose of rinse water in accordance with local and national regulations.
- Conditions for safe storage : No smoking.
 Keep container tightly closed in a dry and well-ventilated place.
 Containers which are opened must be carefully resealed and kept upright to prevent leakage.
 Observe label precautions.
 Electrical installations / working materials must comply with the technological safety standards.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

| Components | CAS-No. | Value type (Form of exposure) | Control parameters / Permissible concentration | Basis |
|------------|---------|----------------------------------|---|-------|
| | | | | |

JM TPO Low VOC Membrane Adhesive

Version 0.1

Revision Date 01/08/2015

Print Date 01/13/2015

| | | | | |
|--------------------|-----------|--------------------------------|--------------------------------------|-----------|
| tert-butyl acetate | 540-88-5 | TWA | 200 ppm | ACGIH |
| | | TWA | 200 ppm 950 mg/m ³ | NIOSH REL |
| | | TWA | 200 ppm 950 mg/m ³ | OSHA |
| | | TWA | 200 ppm 950 mg/m ³ | OSHA |
| acetone | 67-64-1 | TWA | 500 ppm | ACGIH |
| | | STEL | 750 ppm | ACGIH |
| | | TWA | 250 ppm 590 mg/m ³ | NIOSH REL |
| | | TWA | 1,000 ppm 2,400 mg/m ³ | OSHA |
| | | TWA | 750 ppm 1,800 mg/m ³ | OSHA |
| | | STEL | 1,000 ppm 2,400 mg/m ³ | OSHA |
| toluene | 108-88-3 | TWA | 20 ppm | ACGIH |
| | | TWA | 100 ppm 375 mg/m ³ | NIOSH REL |
| | | ST | 150 ppm 560 mg/m ³ | NIOSH REL |
| | | TWA | 200 ppm | OSHA |
| | | CEIL | 300 ppm | OSHA |
| | | Peak | 500 ppm | OSHA |
| | | TWA | 100 ppm 375 mg/m ³ | OSHA |
| | | STEL | 150 ppm 560 mg/m ³ | OSHA |
| magnesium oxide | 1309-48-4 | TWA (Inhalable fraction) | 10 mg/m ³ | ACGIH |
| | | TWA (fume, total particulate) | 15 mg/m ³ | OSHA |
| | | TWA (Fume - total particulate) | 10 mg/m ³ | OSHA |
| ethylbenzene | 100-41-4 | TWA | 20 ppm | ACGIH |
| | | TWA | 100 ppm 435 mg/m ³ | NIOSH REL |
| | | ST | 125 ppm 545 mg/m ³ | NIOSH REL |
| | | TWA | 100 ppm 435 mg/m ³ | OSHA |
| | | TWA | 100 ppm 435 mg/m ³ | OSHA |
| | | STEL | 125 ppm 545 mg/m ³ | OSHA |

Personal protective equipment

Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hand protection
Remarks

: Take note of the information given by the producer

JM TPO Low VOC Membrane Adhesive

Version 0.1

Revision Date 01/08/2015

Print Date 01/13/2015

concerning permeability and break through times, and of special workplace conditions (mechanical strain, duration of contact).

- Eye protection : Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.
- Skin and body protection : Choose body protection according to the amount and concentration of the dangerous substance at the work place.
- Hygiene measures : Handle in accordance with good industrial hygiene and safety practice.
When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.
Written instructions for handling must be available at the work place.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

- Appearance : liquid
- Colour : amber
- Odour : No data available
- Odour Threshold : No data available
- pH : No data available
- Melting point/freezing point : No data available
- Initial boiling point and boiling range : No data available
- Flash point : -1 °C
- Evaporation rate : No data available
- Flammability (solid, gas) : No data available
- Upper explosion limit : No data available
- Lower explosion limit : No data available
- Vapour pressure : No data available
- Relative vapour density : No data available
- Relative density : No data available
- Density : 0.93 g/cm³
- Water solubility : No data available

JM TPO Low VOC Membrane Adhesive

Version 0.1

Revision Date 01/08/2015

Print Date 01/13/2015

| | |
|--|---------------------|
| Solubility in other solvents | : No data available |
| Partition coefficient: n-octanol/water | : No data available |
| Auto-ignition temperature | : No data available |
| Thermal decomposition | : No data available |
| Viscosity, dynamic | : No data available |
| Viscosity, kinematic | : No data available |

SECTION 10. STABILITY AND REACTIVITY

| | |
|------------------------------------|--|
| Reactivity | : No decomposition if stored and applied as directed. |
| Chemical stability | : No decomposition if stored and applied as directed. |
| Possibility of hazardous reactions | : No decomposition if stored and applied as directed. Vapours may form explosive mixture with air. |
| Conditions to avoid | : Heat, flames and sparks. |
| Incompatible materials | : Acids Amines Ammonia Incompatible with oxidizing agents. Strong reducing agents |
| Hazardous decomposition products | : Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke). Aldehydes Hydrocarbons Hydrogen chloride gas |

SECTION 11. TOXICOLOGICAL INFORMATION**Acute toxicity****Product:**

Acute oral toxicity : Acute toxicity estimate : > 5,000 mg/kg
Method: Calculation method

Acute toxicity**Components:****tert-butyl acetate:**

Acute oral toxicity : LD0 (Rat): 4,100 mg/kg

JM TPO Low VOC Membrane Adhesive

Version 0.1

Revision Date 01/08/2015

Print Date 01/13/2015

Acute inhalation toxicity : LC50 (Rat): 2,230 mg/m³
Exposure time: 4 h

Acute dermal toxicity : LD0 (Rabbit): 2 mg/kg

Acute toxicity**acetone:**

Acute oral toxicity : LD50 (Rat, female): 5,800 mg/kg

Acute inhalation toxicity : LC50 (Rat): 120 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rabbit): 20,000 mg/kg

Acute toxicity**toluene:**

Acute oral toxicity : LD50 Oral (Rat): 5,580 mg/kg

Acute inhalation toxicity : LC50 (Rat): 28.1 mg/l
Exposure time: 4 h
Test atmosphere: vapour

Acute dermal toxicity : LD50 (Rabbit, male): > 5,000 mg/kg

Acute toxicity**magnesium oxide:**

Acute oral toxicity : LD50 (Rat): > 5,000 mg/kg

Acute toxicity**ethylbenzene:**

Acute oral toxicity : LD50 (Rat): 3,500 mg/kg

Acute inhalation toxicity : LC50 (Rat): 4000 ppm
Exposure time: 4 h

Acute dermal toxicity : LD50 (Rabbit): 17,800 mg/kg

Skin corrosion/irritation**Product:**

Remarks: May cause skin irritation and/or dermatitis.

Skin corrosion/irritation**Components:****toluene:**

Species: Rabbit

Assessment: Irritating to skin.

Result: Irritating to skin.

JM TPO Low VOC Membrane Adhesive

Version 0.1

Revision Date 01/08/2015

Print Date 01/13/2015

Serious eye damage/eye irritation**Product:**

Remarks: May cause irreversible eye damage.

Serious eye damage/eye irritation**Components:****acetone:**

Species: Rabbit

Result: Eye irritation

Exposure time: 24 h

Assessment: Irritating to eyes.

Method: Draize Test

Serious eye damage/eye irritation**toluene:**

Species: Rabbit

Result: Mild eye irritation

Exposure time: 24 h

Carcinogenicity**Components:****ethylbenzene:**

Carcinogenicity -

Assessment

: Limited evidence of carcinogenicity in human studies

IARC

Group 2B: Possibly carcinogenic to humans

ethylbenzene

100-41-4

ACGIH

Confirmed animal carcinogen with unknown relevance to humans

ethylbenzene

100-41-4

OSHA

No component of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by OSHA.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Reproductive toxicity**Components:****toluene:**

Reproductive toxicity -

Assessment

: Suspected of damaging the unborn child., Some evidence of adverse effects on development, based on animal experiments.

JM TPO Low VOC Membrane Adhesive

Version 0.1

Revision Date 01/08/2015

Print Date 01/13/2015

STOT - single exposure**Product:**

Target Organs: Central nervous system

STOT - single exposure**Components:****acetone:**

Exposure routes: inhalation (vapour)

Target Organs: Nervous system

Assessment: May cause drowsiness or dizziness.

STOT - single exposure**toluene:**

Assessment: May cause drowsiness or dizziness.

STOT - repeated exposure**Product:**

Target Organs: Central nervous system

STOT - repeated exposure**Components:****toluene:**

Assessment: May cause damage to organs through prolonged or repeated exposure.

STOT - repeated exposure**ethylbenzene:**

Target Organs: Sensory organs

Assessment: May cause damage to organs through prolonged or repeated exposure.

Aspiration toxicity**Components:****toluene:**

May be fatal if swallowed and enters airways.

Experience with human exposure**Components:****toluene:**

Skin contact:

Remarks:

Prolonged skin contact may defat the skin and produce dermatitis.

ethylbenzene:

Skin contact:

Remarks:

Prolonged skin contact may defat the skin and produce dermatitis.

JM TPO Low VOC Membrane Adhesive

Version 0.1

Revision Date 01/08/2015

Print Date 01/13/2015

Further information**Product:**

Remarks: Symptoms of overexposure may be headache, dizziness, tiredness, nausea and vomiting. Concentrations substantially above the TLV value may cause narcotic effects. Solvents may degrease the skin.

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity**

No data available

Persistence and degradability

No data available

Bioaccumulative potential**Components:****acetone:**Partition coefficient: n-
octanol/water : log Pow: 0.24**toluene:**Partition coefficient: n-
octanol/water : Pow: 2.7**Mobility in soil**

No data available

Other adverse effects

No data available

Product:Regulation : 40 CFR Protection of Environment; Part 82 Protection of
Stratospheric Ozone - CAA Section 602 Class I SubstancesRemarks : This product neither contains, nor was manufactured with a
Class I or Class II ODS as defined by the U.S. Clean Air Act
Section 602 (40 CFR 82, Subpt. A, App.A + B).Additional ecological
information : No data available

SECTION 13. DISPOSAL CONSIDERATIONS**Disposal methods**Disposal of residual product : Do not dispose of waste into sewer.
Do not contaminate ponds, waterways or ditches with
chemical or used container.
Send to a licensed waste management company.

JM TPO Low VOC Membrane Adhesive

Version 0.1

Revision Date 01/08/2015

Print Date 01/13/2015

Contaminated packaging : Empty remaining contents.
 Dispose of as unused product.
 Do not re-use empty containers.
 Do not burn, or use a cutting torch on, the empty drum.

SECTION 14. TRANSPORT INFORMATION

International transport regulations

US DOT: UN1133 Adhesive, 3, II

SECTION 15. REGULATORY INFORMATION

TSCA list : Not relevant
 Not relevant

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

| Components | CAS-No. | Component RQ (lbs) | Calculated product RQ (lbs) |
|--------------------|----------|--------------------|-----------------------------|
| tert-butyl acetate | 540-88-5 | 5000 | * |

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 304 Extremely Hazardous Substances Reportable Quantity

| Components | CAS-No. | Component RQ (lbs) | Calculated product RQ (lbs) |
|--------------|---------|--------------------|-----------------------------|
| formaldehyde | 50-00-0 | 100 | * |

*: Calculated RQ exceeds reasonably attainable upper limit.

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

SARA 313 : The following components are subject to reporting levels established by SARA Title III, Section 313:

| | | |
|--------------|----------|-------|
| toluene | 108-88-3 | 5 % |
| ethylbenzene | 100-41-4 | 0.5 % |

Clean Air Act

The following chemical(s) are listed as HAP under the U.S. Clean Air Act, Section 12 (40 CFR 61):

| | | |
|---------|----------|-----|
| toluene | 108-88-3 | 5 % |
|---------|----------|-----|

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

The following chemical(s) are listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489):

| | | |
|---------|----------|------|
| acetone | 67-64-1 | 25 % |
| toluene | 108-88-3 | 5 % |

JM TPO Low VOC Membrane Adhesive

Version 0.1

Revision Date 01/08/2015

Print Date 01/13/2015

California Prop 65

WARNING: This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

| | |
|---|----------|
| toluene | 108-88-3 |
| benzene (as a solvent, when it can be replaced and in waterproofing preparations) | 71-43-2 |

WARNING! This product contains a chemical known to the State of California to cause cancer.

| | |
|---|-----------|
| ethylbenzene | 100-41-4 |
| lead dioxide | 1309-60-0 |
| benzene (as a solvent, when it can be replaced and in waterproofing preparations) | 71-43-2 |
| 2-chlorobuta-1,3-diene | 126-99-8 |
| formaldehyde | 50-00-0 |

The components of this product are reported in the following inventories:

TSCA : On TSCA Inventory

DSL : All components of this product are on the Canadian DSL.

SECTION 16. OTHER INFORMATION**Further information**

Revision Date : 01/08/2015

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.