



## Material Safety Data Sheet

**Product No. 18107, 18109 NMA Methylnadic Anhydride, Component of Poly/Bed® Test Kits**  
**Issue Date (11-29-06)**  
**Review Date (06-01-12)**

### Section 1: Product and Company Identification

#### Product Name: NMA Methylnadic Anhydride

Synonym: Methyl-5-norbornene-2, 3-dicarboxylic anhydride; 4, 7-Methanoiosobenzfuran-1, 3-dione, 3a, 4, 7,7a-tetrahydromethyl; Methyl bicyclo (2, 2, 1) hept-5-ene-2, 3-dicarboxylic anhydride  
Chemical Family: Alicyclic Dicarboxylic Anhydride.

#### Company Name

**Ted Pella, Inc., P.O. Box 492477, Redding, CA 96049-2477**  
**Domestic Phone (800) 237-3526 (Mon-Thu. 6:00AM to 4:30PM PST; Fri 6:00AM to 4:00PM PST)**  
**International Phone (01) (530) 243-2200 (Mon-Thu. 6:00AM to 4:30PM PST; Fri 6:00AM to 4:00PM PST)**  
**Chemtrec Emergency Number 1-800-424-9300 24 hrs a day.**

### Section 2: Composition / Information on Ingredients

Principle Hazardous Component(s) (chemical and common name(s)) (Cas. No)	%	OSHA PEL mg/m3	ACGIH TLV mg/m3	NTP	IARC	OSHA regulated
Methyl-5-norbornene-2,3-dicarboxylic anhydride (25134-21-8)	100	NE	NE	No	No	No

Manufacturer Limited Values (TWA): 1.00 mg/m3

Methyl-5-norbornene-2,3-dicarboxylic anhydride (25134-21-8) RTECS: RB91000

### Section 3: Hazard Identification

#### Emergency overview

Appearance: Pale, tan liquid.

Immediate effects: WARNING: Extremely irritating to the eyes and respiratory tract.

Material is toxic/sensitizer. Do not get into eyes, on skin, or clothing. Use only with adequate ventilation. Do not breathe vapor.

#### Potential health effects

Primary Routes of entry: Inhalation, skin and eyes.

Signs and Symptoms of Overexposure: ND

Eyes: Conjunctivitis, chemosis, corneal opacity, discharges, blurred vision.

Skin: Erythema, itching, dermatitis, edema.

Ingestion: Unknown; probably pain, nausea, vomiting.

Inhalation: Nasal irritation, discharge, coughing, difficulty breathing. If sensitized asthmatoïd reactions: breathing difficulty, chest pains, collapse.

Chronic Exposure: ND

Chemical Listed As Carcinogen Or Potential Carcinogen: NMA is not listed as a carcinogen by OSHA, NTP, or IARC.

See Toxicological Information (Section 11)

**Potential environmental effects**

See Ecological Information (Section 12)

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**Section 4: First Aid Measures**

**If accidental overexposure is suspected**

Eye(s) Contact: Immediately flush eyes with plenty of water for at least 15 minutes.

Skin Contact: Remove contaminated clothing and flush skin thoroughly. Wash contaminated clothing before reuse. Discard contaminated shoes.

Inhalation: Remove person to fresh air.

Ingestion: Only if person is conscious give water or milk to dilute. DO NOT attempt chemical neutralization. DO NOT INDUCE VOMITING.

Note: In case of any adverse effect from contact get prompt medical attention.

**Note to physician**

Treatment: ND

Medical Conditions generally Aggravated by Exposure: Asthma and chronic pulmonary conditions.

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**Section 5: Fire Fighting Measures**

Flash Point: 135 °C (275 °F) (COC)

Flammable Limits: Unknown.

Auto-ignition point: ND

Fire Extinguishing Media: Foam, carbon dioxide, water in copious amounts. NOTE:

Material will react with water or steam to produce heat. However, water in copious amounts, is appropriate for fighting fires.

Special Fire Fighting Procedures: Respiratory protection against vapors and combustion products.

Unusual Fire and Explosion Hazards: No unusual hazard when product is in drums unless fire causes material to heat up or burn. The vapors and fumes can cause serious respiratory problems.

Hazardous combustion products: Carbon monoxide, carbon dioxide, aldehydes, organic acids, smoke.

DOT Class: Corrosive liquids, n.o.s (Methyl Norbornene Dicarboxylic Anhydride)

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**Section 6: Accidental Release Measures**

Steps to be Taken in Case Material is Released or Spilled: Clean up spills promptly. Wear rubber boots and heavy rubber gloves. Ventilate confined areas. Avoid contact with liquid and vapors. Absorb spills using "Speedy-Dry" or similar absorbent and pick up.

Hose spill area down with water. On Highway: Call Chemtrec-1-800-424-9300. Local environmental agency should be notified. Within Manufacturing Area: Contact

Environmental Control Dept. Disposal Methods: Deposit absorbent material saturated

with product in a separate, labeled, leak proof, container and take to an approved treatment, storage or disposal facility.

Waste Disposal Methods: Dispose of waste according to Federal, State and Local Regulations.

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### **Section 7: Handling and Storage**

Precautions to be Taken in Handling and Storage: Very irritating to eyes and respiratory tract. Avoid contact with eyes, skin or clothing. Avoid breathing vapor or aerosols. Keep container closed. Store out of contact with moisture to avoid hydrolysis to free acid.

Thaw frozen material below 40 °C (104 °F) and mix well before using.

Storage Temperature: Store between 18 °C-40 °C (65 °F-04 °F) to avoid freezing and excessive vapors.

Storage Pressure: ND

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### **Section 8: Exposure Controls / Personal Protection**

#### **Engineering Controls**

Ventilation required: Should be sufficient to keep concentration below exposure limit value with the use of local exhaust where needed.

#### **Personal Protection Equipment**

Respiratory protection: Wear NIOSH approved respirator equipped with cartridges for protection from organic vapors, acid gases, and particulates (HEPA); respirator selection should be chosen in accordance with NIOSH Respirator Decision Logic Publication No. 87-108.

Protective gloves: Impervious gloves

Skin protection: Appropriate, clean clothing to prevent skin contact including long sleeved shirt, buttoned at wrist.

Eye protection: Safety glasses with cup side shields. Full face shield if there is any possibility of splashing or eye contact.

Additional clothing and/or equipment: ND

#### **Exposure Guidelines**

See Composition/Information on Ingredients (Section2)

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### **Section 9 Physical and Chemical Properties**

Appearance and Physical State: Pale tan liquid.

Odor (threshold): Slight odor

Specific Gravity (H<sub>2</sub>O=1): 1.245 @ 15.4/4 °C

Vapor Pressure (mm Hg): 5.0 @ 120 °C

Vapor Density (air=1): 6.1 @ 20 °C

Percent Volatile by volume:

Evaporation Rate (butyl acetate=1): ND

Boiling Point: ca 140 °C @ 10 mmHg

Freezing point / melting point: <180 °C

pH: ND

Solubility in Water: Insoluble in water, but will hydrolyze to diacid in presence of water.

Soluble in: Toluene, acetone, benzene, naphtha, and xylene.

Molecular Weight: 178.2

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### **Section 10: Stability and Reactivity**

Stability: At Ambient Temperatures: Stable. However, hydrolyzes to free acid in presence of moisture. At Elevated Temperatures: Decomposes.

Conditions to Avoid: Excessive temperatures.

Materials to Avoid (Incompatibility): Water, acid, base, oxidizing material.

Hazardous Decomposition Products: Carbon dioxide.

Hazardous Polymerization: Will occur under the following condition: Polymerizes at 200 °C.

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### **Section 11: Toxicological Information**

Results of component toxicity test performed: (Ingestion, Oral) Rat: LD50 = 958 (856 - 1077) mg/kg (as is), Rat: 172 mg/kg (in olive oil). (Absorption, Dermal) Rabbit: LD50 = >2000 mg/kg. (Inhalation) Rat: LC50 = (4 Hour) as aerosol. Mortality: 8/10 @ 750 mg/m<sup>3</sup> in 7 days. (Irritation, Skin) Rabbit: 50% in PEG 400: 0.75 on scale of 8 (Draize). (Skin) Rabbit: as is 3.9 on scale of 8 (Draize). (Eyes) Rabbit: no wash: 83 on scale of 110 (Draize). (Eyes) Rabbit: washout after 4 sec.: 12-37 on scale of 110 (Draize).

Human experience: Induced contact caused allergic sensitization in 34 of 52 human subjects. Extremely irritating to eyes and respiratory tract; can cause asthmatoïd reactions by lung sensitization.

This product **does** not contain any compounds listed by NTP or IARC or regulated by OSHA as a carcinogen.

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### **Section 12: Ecological Information**

Ecological Information: ND

Chemical Fate Information: ND

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### **Section 13 Disposal Considerations**

RCRA 40 CFR 261 Classification: D002, Corrosive.

Federal, State and local laws governing disposal of materials can differ. Ensure proper disposal compliance with proper authorities before disposal.

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### **Section 14: Transportation Information**

US DOT Information: Proper shipping name: Corrosive liquids, n.o.s (Methyl Norbornene Dicarboxylic Anhydride)

Hazard Class: 8

Packaging group: III

UN Number: UN1760

IATA: Proper shipping name: Corrosive liquids, n.o.s (Methyl Norbornene Dicarboxylic Anhydride)

Hazard Class: 8

Packing group: III

UN Number: UN1760

Domestic shipments only:

IMO: Proper shipping name: Corrosive liquids, n.o.s (Methyl Norbornene Dicarboxylic Anhydride)

Class: 8

UN Number: UN1760

Packing group: III

Marine Pollutant: No

Canadian TDG: Corrosive liquids, n.o.s (Methyl Norbornene Dicarboxylic Anhydride)

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### **Section 15: Regulatory Information**

#### **United States Federal Regulations**

MSDS complies with OSHA's Hazard Communication Rule 29, CFR 1910.1200.

SARA: Yes

SARA Title III: Tier 2: Pure Liquid: Immediate health effect (corrosive).

RCRA: D002, Corrosive.

TSCA: Methyl-5-norbornene-2, 3-dicarboxylic anhydride (25134-21-8) is listed in the TSCA Inventory.

CERCLA: No

#### **State Regulations**

California Proposition 65: None

#### **International Regulations**

Canada WHMIS: ND

Europe EINECS Numbers: Methyl-5-norbornene-2, 3-dicarboxylic anhydride (25134-21-8) EINECS#: 246-644-8

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### **Section 16: Other Information**

Label Information: ND

European Risk and Safety Phrases: ND

European symbols needed: ND

Canadian WHMIS Symbols: ND

HMIS® Hazard Rating: Health: **2**; Flammability: **1**; Physical Hazard: **0**

(0=least, 1=Slight, 2=Moderate, 3=High, 4=Extreme)

#### **Abbreviations used in this document**

NE= Not established

NA= Not applicable

NIF= No Information Found

ND= No Data

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### **Disclaimer**

Ted Pella, Inc. makes no warranty of any kind regarding the information furnished herein. Users should independently determine the suitability and completeness of information from all sources. While this data is presented in good faith and believed to be accurate, it should be considered only as a supplement to other information gathered by the user. It is the User's responsibility to assure the proper use and disposal of these materials as well as the safety and health of all personnel who may work with or otherwise come in contact with these materials.

MSDS Form 0013F1 V2