Dixie Chemical Company, Inc.

SAFETY DATA SHEET

SECTION 1 – CHEMICAL IDENTIFICATION

Trade Name:	Nadic® Methyl Anhydride	Date of Issue:	June 14, 2004
Synonym:	NMA; Methyl-5-norbornene-2,3-dicarboxylicanhydride; 4-7-Methanoisobenzofuran-1,3-dione	Revised Date:	May 15, 2012
Formula:	$C_{10}H_{10}O_3$		
Chemical Family:	Anhydride		
Chemical Use:	Chemical intermediate.		
Telephone Number:	Information	(281) 474-3271	
Emergency Number:	**Chemtrec**	**(800) 424-9300 Domestic**	
		(703) 527-3887 International	

HMIS Hazard Rating

Health:	2	4 = Extreme
Fire:	1	3 = High
Reactivity:	0	2 = Moderate
PPE rating to be supplied by user depending on use conditions.		1 = Slight
		0 = Least

SECTION 2 – HAZARDS IDENTIFICATION

Classification according to Regulation (EC) 1272/2008 (CLP

Acute oral toxicity	Category 4
Acute Inhalation Toxicity - Dusts and Mists	Category 4
Skin Corrosion / irritation	Category 1
Serious Eye Damage/Eye Irritation	Category 1
Respiratory Sensitization	Category 1

Labeling according to Regulation (EC) 1272/2008 (CLP)

DANGER

Hazard Statements

H314 Causes severe skin burns and eye damage

H332 Harmful if inhaled

H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled

H318 Causes serious eye damage

H302 Harmful if swallowed

Precautionary Statements

P301 + P330 + P331 - IF SWALLOWED: rinse mouth. Do NOT induce vomiting
P280 - Wear eye protection/face protection
P305 + P351 + P338 - IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do.
Continue rinsing
P310 - Immediately call a POISON CENTER or doctor/physician
P261 - Avoid breathing dust/fume/gas/mist/vapors/spray
P304 + P341 - IF INHALED: If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing
P342 + P311 - If experiencing respiratory symptoms: Call a POISON CENTER or doctor/physician
P301+ P312 - IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell
P304 + P340 - IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing

Inhalation:	May cause irritation to the nose, throat, and respiratory tract. May cause sensitization resulting in asthmatic individuals or individuals with asthma. Aerosol inhalation may cause fluid retention and swelling in the lungs (edema) or bronchitis.
Skin Contact:	May cause irritation, redness, swelling, and drying. Dermatitis may result from repeated contact.
Eye Contact:	May cause severe irritation or burns. May aggravate pre-existing disorders.
Ingestion:	Effects are unknown. May cause irritation, pain, nausea, and vomiting.

SECTION 3 – COMPOSITION

Components	Percentage	TLV	CAS #	EINECS
Nadic® Methyl Anhydride	>97%	Not Established	25134-21-8	246-644-8

SECTION 4 – FIRST AID MEASURES

Inhalation: Remove victim to fresh air. Get medical attention. If breathing is difficult, give oxygen. If not breathing, administer artificial respiration.

Skin Contact: Immediately remove contaminated clothing and shoes. Wipe excess material from skin and flush with water for at least 15 minutes. Use soap if available or follow by washing with soap and water. Get medical attention.

Eye Contact: Immediately flush with plenty of water for at least 15 minutes, occasionally lifting the upper and lower lids. Get medical attention.

Ingestion: DO NOT INDUCE VOMITING. GET MEDICAL ATTENTION.

SECTION 5 – FIREFIGHTING MEASURES

Extinguishing Media:	Use water, foam, dry chemical, or carbon dioxide (CO_2). Material reacts with water to produce heat and Nadic Methyl Acid. Use water in flooding quantities to fight fire.
Special Firefighting Procedures/Precautions:	Firefighters should wear NIOSH approved self-contained breathing apparatus. Responders should wear protective clothing to prevent skin contact. Move containers from fire area. If unable to move, cool sealed containers with water.
Unusual Fire and Explosion Information:	Toxic vapors such as oxides of carbon, aldehydes, and organic acids will be emitted upon thermal decomposition.
Environmental Note:	Prevent entry into waterways.

SECTION 6 – ACCIDENTAL RELEASE MEASURES

Protective Measures: Evacuate area of unprotected personnel. Eliminate sources of ignition. Stay upwind and out of low areas. Wear personal protective equipment (See section 8) when responding to spills.
Spill Management: Stop source of leak if safe to do so. Dike and contain spill. Use water spray (fog) to reduce vapors. If vapor cloud forms, blanket area with water fog and foam. Use vacuum truck or pump to storage/salvage vessels. Clean up residue with an absorbent such as clay, sand or other suitable material and dispose of properly. Spray area with water to remove trace residue. Contain run-off from residue flush and dispose of properly. Prevent entry into waterways, sewer, or confined areas. Remove contaminated trace residues from soil and dispose of in same manner as material. For small spills, clean up residue with an absorbent such as clay, sand or other suitable material. Place in non-leaking container and dispose of material properly.
Disposal: Proper disposal should be evaluated based on regulatory status of this material (refer to section 13).

SECTION 7 – HANDLING AND STORAGE

Containers do not have to be grounded and bonded when material is transferred, but it is recommended as a good practice. Store in a cool, dry place. Keep away from heat, sparks, and flames.

SECTION 8 – EXPOSURE CONTROLS AND PERSONAL PROTECTION

Respiratory Protection:	NIOSH approved respiratory protection for organic vapors.
Ventilation:	Utilize local exhaust to control high vapor connections in confined areas.
Protective Gloves:	Utilize appropriate impervious chemical gloves.

Eye Protection:	Chemical goggles and possibly a face shield. Have eyewash facilities readily available.
Other Protective Equipment:	Wear additional protective clothing to prevent skin contact. This may include chemical resistant boots and chemical resistant suits.
Work Practices:	Use good personal hygiene practices. Wash hands before eating, drinking, smoking or using toilet facilities. Promptly remove soiled clothing and wash thoroughly before reuse. Shower after work using plenty of soap and water.

SECTION 9 – PHYSICAL AND CHEMICAL PROPERTIES

Boiling Point:	132°C (270°F) at 2 mm Hg or ca. 140°C (284°F) at 10 mm Hg
Melting Point:	Not Established
Molecular Weight:	178.19
Volatility/Vol. (%):	Not Established
Vapor Pressure (mm Hg):	5 mm Hg at 120°C (248°F)
Vapor Density (Air = 1):	6.1 g/L at 20°C (68°F)
Solubility in H_2O:	Not Established
Appearance/Odor:	Pale yellow to tan liquid / Slight odor.
Odor Threshold:	Not Established
Specific Gravity (H_2O = 1):	1.2-1.25 at 20°C (68°F)
pH:	ca.4 (pH of diacid by analogy to HHPAA) 2.4 (10% aqueous soln.)
Viscosity (cps)	Not Established
Evap. Rate (Butyl Acetate = 1):	Not Established
Flash Point:	135°C (275°F) PMCC, ASTM D93
Lower Explosive Limit:	Not Established
Upper Explosive Limit:	Not Established
Autoignition Temperature:	Not Established

SECTION 10 – STABILITY AND REACTIVITY

Chemical Stability:	Stable.
Conditions to Avoid:	Sources of ignition and incompatibles. Will react with water to produce free acid and heat.
Incompatible Materials:	Water, acids, bases, and oxidizing agents
Decomposition Products:	Oxides of carbon.
Hazardous Polymerization:	200°C (392°F)

SECTION 11 – TOXICOLOGICAL INFORMATION

The toxicological effects of this mixture have not been thoroughly investigated.

Carcinogenicity listed by: NTP: No IARC: No OSHA: No

ACGIH	**Nadic® Methyl Anhydride**	TLV:	N.E.	STEL:	N.E.
OSHA	**Nadic® Methyl Anhydride**	PEL:	N.E.	STEL:	N.E.

Inhalation:	LCLo	750 mg/m^3 (rat)
Skin:	LD50:	4920 mg/kg (rat)
Ingestion:	LD50:	914 mg/kg (rat)
Injection:	LD50:	100 mg/kg (rat)

SECTION 12 – ECOLOGICAL INFORMATION

No data available.

SECTION 13 – DISPOSAL INFORMATION

Place in a city, state, or federally permitted disposal facility. Handle in accordance with all applicable regulations.

SECTION 14 – TRANSPORTATION INFORMATION

Proper Shipping Name:	Corrosive liquids, n.o.s. (Methyl Norbornene Dicarboxylic Anhydride)
Primary Hazard Class:	8
Secondary Hazard Class:	No
Identification Number:	UN 1760
Packing Group:	III
Reportable Quantity:	No
Marine Pollutant:	No
Label(s) Required:	CORROSIVE

SECTION 15 – REGULATORY INFORMATION

TSCA: All substances are listed on, or are exempt from reporting.
TSCA 12(b) Export Notification: Not Listed
California Proposition 65: Not Listed

SARA Hazard Notification:

Hazard Categories Under Title III:	Acute
Section 302 Extremely Hazardous Substances:	Not Listed
Section 313 Toxic Chemicals:	Not Listed
CERCLA RQ:	Not Listed

European Regulations:

1,2,3,6-tetrahydromethyl-3,6-methanophthalic anhydride

EINECS Number: 246-644-8
Labeling according to EC directives.

Symbol: Xi
Irritant

R-Phrases: R22 Harmful if swallowed.
R36/37/38 Irritating to eyes, respiratory system and skin.
R42 May cause sensitization by inhalation.

S-Phrases: S39 Wear eye/face protection.

Canadian Regulations:

This substance is listed on the DSL.
This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and MSDS contains all the information required by the Controlled Products Regulations.

Japanese Regulations:

ENCS Number: 4-268

Australian Regulations:

This substance is listed on the AICS.

Korean Regulations:

ECL Number: KE-33483

Philippines Regulations:

This substance is listed on the PICCS.

SECTION 16 – OTHER INFORMATION

PPE Codes (NPCA-HMIS)

A – Glasses
B – Glasses, Gloves
C – Glasses, Gloves, Apron
D – Faceshield, Gloves, Apron
E – Glasses, Gloves, Dustmask
F – Glasses, Gloves, Apron, Dust Respirator
G – Glasses, Gloves, Vapor Respirator
H – Goggles, Gloves, Apron, Vapor Respirator
I – Glasses, Gloves, Dust/Vapor Respirator
J – Goggles, Gloves, Apron, Dust/Vapor Respirator
K – Supplied Air, Gloves, Full Protective Suit, Boots

Disclaimer

The information contained in the Safety Data Sheet is based on technical data that Dixie Chemical Company believes to be reliable and is provided to our customers at no cost. It is intended for use by persons having technical skill and at their own discretion and risk. Dixie Chemical Company will assume no liability in connection with any uses of this information and no warranties, expressed or implied, are made with regards to this information since conditions of use are outside Dixie Chemical Company's control.