

SPI Supplies Division

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Manufacturer's CAGE: 1P573

Safety Data Sheet

Date Effective: December 9, 2015

SPI Catalog# 02683-AB
N-Octenyl Succinic Anhydride

Component of 02682-AB
SPI-Chem™ Ultra-Low Viscosity Kit, n-OSA Formulation

Section 1: Identification

Chemical Name/Synonyms..... N-Octenyl Succinic Anhydride; Dihydro-3-(2-octenyl)-2,5-furandione

Chemical family..... organic anhydride

Intended Use: Formation of embedding medium for electron microscopy; component of Ultra-Low Viscosity Embedding Kit; available only in 200 ml size container.

Emergencies

Contacting CHEMTREC:

24 Hour Emergency Use Only #'s...

Within USA and Canada: 1-800-424-9300

Outside USA and Canada: +1 703-741-5970 (collect calls accepted)

Section 2: Hazard Identification

Product or Trade Name..... N-Octenyl Succinic Anhydride

CAS #'s..... 42482-06-4

Chemical Formula..... C₁₂H₁₈O₃

GHS Classification

Classification:

Skin Corrosion / Irritation – Category 2

Serious Eye Damage/Eye Irritation – Category 2

Label elements

Pictogram:



Signal Word: Warning

Hazard Precautions:

H315 – Causes skin irritation.

H319 – Causes serious eye irritation.

Precautionary Statements:

- P264 – Wash hands thoroughly after handling.
- P280 – Wear protective gloves/ protective clothing/ eye protection/ face protection.
- P302+P352 – IF ON SKIN: Wash with plenty of soap and water.
- P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
- P332+p313 – If skin irritation occurs: Get medical advice / attention.
- P337+P313 – If eye irritation persists: Get medical advice / attention.
- P362 – Take off contaminated clothing and wash before reuse.**

Hazardous Material Information System USA

- Health..... 2
- Fire Hazard..... 1
- Reactivity..... 0
- Personal Protection.....

NFPA Rating (estimated)

- Health..... 2
- Flammability..... 1
- Reactivity..... 0

Signs and Symptoms of Potential Overexposure:

Direct contact causes eye irritation. Direct contact causes skin irritation. Vapor can irritate the eyes, nose, and respiratory tract. May cause gastrointestinal tract irritation with nausea and vomiting.

Primary Route(s) of Exposure: Inhalation, Ingestion, Eye contact, Skin contact.

Medical Conditions Aggravated by Exposure: Not data available.

Risk Phrases:

- R36/38: Irritating to eyes and skin.
- R21/22: Harmful in contact with skin and if swallowed.
- R43: May cause sensitization by skin contact.

Section 3: Composition

2-Octenyl succinic anhydride CAS# 42482-06-4 ~100%

Section 4: First Aid Measures

Skin Contact: May cause skin irritation. Remove contaminated clothing and continue flushing with water. Get medical attention if irritation develops or persists.

Eye Contact: Quickly and gently blot or brush chemical off the face. Rinse eyes immediately with large amounts of water for at least 15 minutes, occasionally lifting the eyelids. Obtain medical attention immediately.

Inhalation: If symptoms of respiratory irritation are experienced, remove source of contamination or move victim to fresh air and obtain medical advice. Take proper precautions to ensure your own safety

before attempting rescue (e.g. wear appropriate protective equipment, use the buddy system. If breathing is difficult, oxygen may be beneficial if administered by trained personnel, preferably on a doctor's advice. Immediately transport victim to an emergency care facility.

Ingestion: Have victim rinse mouth thoroughly with water if alert and capable. Do NOT induce vomiting.

Acute: Direct contact causes eye irritation. Direct contact causes skin irritation. Vapor can irritate the eyes, nose, and respiratory tract. May cause gastrointestinal tract irritation with nausea and vomiting.

Delayed Effects: None known.

Thermal Exposure: Not applicable.

Note to Physician: No specific indications. Treatment should be based on the judgment of the physician in response to the reactions of the patient.

Section 5: Fire Fighting Measures

Extinguishing Media:

Appropriate Extinguishing Media: Carbon dioxide, Alcohol foam, Water spray, Foam.

Special hazards arising from the substance or mixture:

Hazardous Products of Combustion: Carbon dioxide, Carbon monoxide.
Irritating and/or toxic fumes may be released if this material is burned.

Potential for Dust Explosion: Not applicable.

Special Flammability Hazards: Can be burned in fire releasing toxic vapors.

Advice for firefighters:

Basic Fire Fighting Guidance: As in any fire, wear self-contained breathing apparatus – pressure-demand, MSHA/NIOSH approved or equivalent - and full protective gear.

Section 6: Accidental Release Measures

Personal precautions, protective equipment and emergency procedures:

Evacuation Procedures: Isolate the hazard area and deny entry to unnecessary and unprotected personnel.

Special Instructions: See Section 8 for personal protective equipment recommendations. Remove all contaminated clothing to prevent further absorption. Decontaminate affected personnel using the first aid procedures in Section 4. Leather shoes that have been saturated must be discarded.

Environmental precautions:

Prevent releases to soils, drains, sewers and waterways.

Methods and material for containment and cleaning up:

LARGE SPILLS: Shut off leak if safe to do so. Clean up spills immediately. Wear protective equipment during clean-up. Prevent skin/eye contact. Stop the flow of material, if this is without risk. The area may require diking to contain the spill. For **SMALL SPILLS:** Use suitable absorbent material and collect for later disposal. Carefully scoop up absorbent material and place into appropriate disposal container(s). Scrub area with detergent and water. Prevent runoff from entering drains, sewers and streams.

Reference to other sections:

Refer to section 8 for information on selecting personal protective equipment.
Refer to section 13 for information on spilled product, absorbent and clean-up material disposal instructions.

Section 7: Handling and Storage

Precautions for safe handling:

Precautions for Unique Hazards: Not applicable.

Practices to Minimize Risk: Wear appropriate protective equipment when performing maintenance on contaminated equipment. Wash hands thoroughly before eating or smoking after handling this material.

Special Handling Equipment: Use with adequate ventilation. Wash thoroughly after handling.

Conditions for safe storage, including any incompatibilities:

Storage Precautions & Recommendations: Store in a cool dry place. Keep container closed when not in use.

Dangerous Incompatibility Reactions: Strong oxidizing agents.

Incompatibilities with materials of Construction: None known.

Specific end use(s):

Formation of embedding medium for electron microscopy; component of Ultra-Low Viscosity Embedding Kit; available only in 200 ml size container.

Section 8: Exposure Controls and Personal Protection

Control Parameters: Occupational Exposure Limit

Air Monitoring Method: Not applicable

Derived No Effect Levels (DNELs) - Workers

<u>Route</u>	<u>DNEL</u>
Acute-systemic effects (dermal)	1.0 mg/kg body weight/day
Long-term – systemic effects (dermal)	0.33 mg/kg body weight/day
Long-term – systemic effects (inhalation)	Not established. Exposure unlikely.
Long-term – local effects (dermal)	10 mg/kg body weight/day
Long-term – systemic (oral) reproductive	0.5 mg/kg body weight/day
Long-term – systemic (oral) developmental	5 mg/kg body weight/day

Derived No Effect Levels (DNELs) – General Population:

<u>Route</u>	<u>DNEL</u>
Acute – systemic effects (dermal)	Qualitative
Acute – systemic effects (inhalation)	assessment – skin/eye/respiratory
Long-term – systemic effects (dermal)	irritant. No applications
Long-term – systemic effects (inhalation)	involving the
Long-term – systemic effects (oral)	general
Acute and long-term – local effects (dermal, inhalation)	public

Predicted No Effect Concentrations (PNECs)

<u>Route</u>	<u>PNEC</u>
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PNEC aqua (freshwater)	0.02 mg/L
PNEC aqua (marine water)	0.002 mg/L
PNEC aqua (intermittent releases)	0.2 mg/L
PNEC aqua (STP)	10 mg/L
PNEC sediment (freshwater)	1.7 mg/kg sediment dry weight
PNEC sediment (marine water)	0.17 mg/kg sediment dry weight
PNEC soil	0.2 mg/kg soil dry weight
PNEC oral (wildlife exposures)	Derivation waived – (log K_{ow} > 3)

Exposure controls:

Other Engineering Controls: All operations should be conducted in well-ventilated conditions. Local exhaust ventilation should be provided. Use process enclosures to control the level of dust in the air.

Personal Protective Equipment: Neoprene, nitrile or polyvinyl chloride gloves conforming to at least EN374. Use safety glasses with side shields under normal exposure conditions; use chemical goggles where there is potential for splashing, spraying or generation of mists or vapors. Respiratory protection is not normally required, but where overexposure is a concern, use NIOSH-approved chemical cartridge respirator with organic vapor cartridges.

Respirator Caution: Observe OSHA regulations for respirator use (29 CFR 1910.134). Air-purifying respirators must not be used in oxygen-deficient atmospheres.

Thermal Hazards: Not applicable.

Environmental Exposure Controls: The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Select controls based on a risk assessment of local circumstances. If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Section 9: Physical and Chemical Properties

Information on basic physical and chemical properties:

State:	liquid
Appearance:	clear, pale yellow to pink
Odor:	slight
Molecular Formula:	$C_{12}H_{18}O_3$
Molecular Weight:	210.2695
Vapor Pressure:	43.5 Pa
Evaporation Rate:	No data available
Specific Gravity:	0.9633 @ 20°C
Vapor Density (air=1):	7.3
Boiling Point:	235°C
Freezing/Melting Point:	11 – 14°C
Solubility in Water:	20 mg/L @ 20°C
Octanol/Water Coefficient:	Log K_{ow} 4.68 @ 22°C
pH:	No data available.
Odor Threshold:	Not applicable
Viscosity:	44 cps @ 20°C (68°F)
Autoignition Temperature:	No data available
Flash Point and Method:	146-206°C @ 101.3kPa; Closed Cup
Flammable Limits:	No data available
Flammability (solid, gas):	Not applicable
Decomposition Temperature:	235°C

Explosive Properties: Not explosive
Oxidizing Properties: Not oxidizing

Section 10: Stability and Reactivity

Reactivity: Not classified as dangerously reactive.

Chemical stability: Stable under normal conditions.

Possibility of Hazardous reactions: None expected to occur.

Conditions to avoid: No data.

Incompatible Materials: Strong oxidizing agents

Hazardous decomposition products: Products from combustion may include dense smoke, irritating and toxic fumes and vapors.; Carbon dioxide; Carbon monoxide

Section 11: Toxicological Information

Information on toxicological effects:

Acute Oral LD50: 1098 mg/kg (rat)

Acute Dermal LD50: >1000 mg/kg (rat)

Acute Inhalation LC50: >5.3 mg/L (rat) (Dust or mist)

Skin Irritation: Irritating to the skin

Eye Irritation: Moderately irritating to eyes

Skin Sensitization: A similar substance causes skin sensitization in animal tests

Mutagenicity: This product has been shown not to be mutagenic based on a battery of assays.

Reproductive/Developmental Toxicity: No evidence of reproductive effects.

Carcinogenicity: No data available

Target Organs: Not applicable

Primary Routes of Exposure: Inhalation. Ingestion. Eye contact. Skin contact.

Most important symptoms and effects, both acute and delayed: Direct contact causes eye irritation. Direct contact causes skin irritation. Vapor can irritate the eyes, nose, and respiratory tract. May cause gastrointestinal tract irritation with nausea and vomiting. May cause sensitization by skin contact. **Delayed Effects:** None known.

Additive or Synergistic effects: None known

Section 12: Ecological Information

Toxicity:

LC50(96h) Oncorhynchus mykiss > 100 mg/L

24-hrLC50 Daphnia magna > 100 mg/L

Aquatic EC50 (96h) Selenastrum capricornutum (algae) – 110 mg/L

Persistence and degradability: The substance was shown to be readily biodegradable in a closed bottle test conducted in accordance with OECD Guideline 301D. Biodegradation of 71.66% was reported on day 19 of the 28 day study.

Bioaccumulative potential: Not expected to bioconcentrate in aquatic species.

Mobility in soil: This material is expected to have essentially no mobility in soil. It absorbs strongly to most soil types.

Results of PBT and vPvB assessment: This substance is not a PBT or vPvB.

Other adverse effects: Not known.

Section 13: Disposal Considerations

Waste treatment methods:

US EPA Waste Number: Non-Hazardous

Waste Disposal: NOTE: Generator is responsible for proper waste characterization.

State hazardous waste regulations may differ substantially from federal regulations. Dispose of this material responsibly, and in accordance with standard practice for disposal of potentially hazardous materials as required by applicable international, national, regional, state or local laws, and environmental protection duty of care principles. Do NOT dump into any sewers, on the ground, or into any body of water. For disposal within the EC, the appropriate classification code according to the European Community List of Wastes should be used. Note that disposal regulations may also apply to empty containers and equipment rinsates.

Section 14: Transport Information

For DOT / IATA / IMDG:

UN Number: Not applicable

UN proper shipping name: Chemicals, n.o.s. (N-Octenylsuccinic Anhydride)

Transport hazard class: Not applicable

Packing Group: Not applicable

Environmental hazards: Not applicable

Special precautions for user: Not applicable

NA Emergency Guidebook Numbers: Not applicable

IMDG EMS: Not applicable

Transport in Bulk according to Annex II of MARPOL73/78 and the IBC Code: Not applicable

Section 15: Regulatory Information

Safety, health and environmental regulations/ legislation specific for the substance or mixture:

<u>Chemical Inventory Lists:</u>	<u>Status:</u>	CAS# 26680-54-6	EINECS: 247-899-8
USA TSCA	Listed		
Canada (DSL/NDSL)	DSL		
Korea KE-10725	Listed		
China	Listed		
Japan (2)-852X	Listed		
Australia	Listed		
Philippines	Listed		
New Zealand	Listed		

WHMIS Classification: Class D, Division 2, Subdivision B: Irritant

German Water hazard: Not listed

SARA 13: Not listed

Chemical safety assessment: Not applicable

Section 16: Other Information

Abbreviations:

ACGIH: American Conference on Governmental Industrial Hygienists
CAS: Chemical Abstracts Service
CFR: Code of Federal Regulations
DSL/NDL: Domestic Substances List/Non-Domestic Substances List
EC: European Community
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
EU: European Union
GHS: Globally Harmonized System
LC: Lethal Concentration
LD: Lethal Dose
NFPA: National Fire Protection Association
NIOSH: National Institute of Occupational Safety and Health
NTP: National Toxicology Program
OSHA: Occupational Safety and Health Administration
PEL: Permissible Exposure Limit
RQ: Reportable Quantity
SARA: Superfund Amendments and Reauthorization Act of 1986
TLV: Threshold Limit Value
WHMIS: Workplace Hazardous Materials Information System

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