



MATERIAL SAFETY DATA SHEET

IDENTITY: **Modified Method 8280 Calibration Solution**

SECTION I

Manufacturer: Cerilliant Corporation
 811 Paloma, Suite A
 Round Rock, TX 78664

Emergency Telephone Number: (512) 238-9974
 Date Prepared: April 27, 2007

SECTION II - HAZARDOUS COMPONENTS/IDENTITY INFORMATION

Hazardous Components	Synonyms	CAS Number	%
n-Nonane	Nonane	111-84-2	Balance
2,3,7,8-TCDD	NA	1746-01-6	≤0.000200
2,3,7,8-TCDF	NA	51207-31-9	≤0.000200
1,2,3,7,8-PeCDD	NA	40321-76-4	≤0.000200
1,2,3,7,8-PeCDF	NA	57117-41-6	≤0.000200
2,3,4,7,8-PeCDF	NA	57117-31-4	≤0.000200
1,2,3,4,7,8-HxCDD	NA	39227-28-6	≤0.000500
1,2,3,6,7,8-HxCDD	NA	57653-85-7	≤0.000500
1,2,3,7,8,9-HxCDD	NA	19408-74-3	≤0.000500
1,2,3,4,7,8-HxCDF	NA	70648-26-9	≤0.000500
1,2,3,6,7,8-HxCDF	NA	57117-44-9	≤0.000500
2,3,4,6,7,8-HxCDF	NA	60851-34-5	≤0.000500
1,2,3,7,8,9-HxCDF	NA	72918-21-9	≤0.000500
1,2,3,4,6,7,8-HpCDF	NA	67562-39-4	≤0.000500
1,2,3,4,7,8,9-HpCDF	NA	55673-89-7	≤0.000500
1,2,3,4,6,7,8-HpCDD	NA	35822-46-9	≤0.000500
OCDD	NA	3268-87-9	≤0.001000
OCDF	NA	39001-02-0	≤0.001000
1,2,3,4-TCDD- ¹³ C ₁₂	NA	114423-99-3	≤0.000050
2,3,7,8-TCDD- ¹³ C ₁₂	NA	76523-40-5	≤0.000050
2,3,7,8-TCDD- ³⁷ Cl ₄	NA	85508-50-5	≤0.000025
2,3,7,8-TCDF- ¹³ C ₁₂	NA	89059-46-1	≤0.000050
1,2,3,6,7,8-HxCDD- ¹³ C ₁₂	NA	109719-81-5	≤0.000050
1,2,3,7,8,9-HxCDD- ¹³ C ₁₂	NA	109719-82-6	≤0.000050
1,2,3,4,6,7,8-HpCDF- ¹³ C ₁₂	NA	109719-84-8	≤0.000100
OCDD- ¹³ C ₁₂	NA	114423-97-1	≤0.000100

SECTION III – Hazard Identification

Flammable. Flammable (EU). May cause central nervous system depression. May cause eye and skin irritation. Target organs: Central Nervous System, Cardiovascular system 2,3,7,8-Tetrachlorodibenzo-p-dioxin-¹³C₁₂ and 2,3,7,8-Tetrachlorodibenzofuran-¹³C₁₂ are a poisons by ingestion, skin contact, and intraperitoneal routes.

SECTION IV – First Aid Measures

Eye Contact: Flush eyes with copious amounts of water for a minimum of 15 minutes and transport to a medical facility.

Ingestion: Do not induce vomiting. Give victim large quantities of liquid and transport to a medical facility.

Skin Contact: Wash affected areas with copious amounts of water and transport to a medical facility.

Inhalation: Remove to fresh air. If breathing is disturbed, give artificial respiration while transporting to a medical facility.

SECTION V- Fire Fighting Measures

Flash Point: 31°C (88°F)

Flammable Limits

Method Used: Closed cup

LEL: 0.8% **UEL:** 2.9%

Extinguishing Media: Dry chemical, carbon dioxide or Halon extinguisher.

Special Fire Fighting Procedures: Wear SCBA and protective clothing to prevent contact with skin and eyes.

Unusual Fire and Explosion Hazards: Flashback along vapor trail may occur.

SECTION VI- Accidental Release Measures

Evacuate area. Remove all sources of ignition. Use inert absorbent to pick up all spilled material. Transfer to a suitable waste container with non-sparking tools. Wash spill site with appropriate cleaning agent to remove residual traces of spilled material.

SECTION VII- Handling and Storage

Handling: Do not breathe vapor. Avoid contact with eyes, skin, and clothing. Avoid prolonged repeated exposure. Wash thoroughly after handling.

Storage: Room temperature. Protect from light. Keep container closed. Keep away from ignition sources.

SECTION VIII-Exposure Controls/Personal Protection

As appropriate to quantity handled.

Ventilation - Local Exhaust: Use with forced ventilation.

General Mechanical: Normal laboratory air exchange.

Special: N/A

Respiratory Protection: NIOSH approved cartridge type respirator with organic vapor cartridges recommended.

Eye Protection: Safety glasses with side shields or chemical safety goggles.

Protective Gloves: Compatible chemical resistant gloves.

Other Protective Clothing or Equipment: Lab Coat

Work/Hygienic Practices: Only experienced personnel should be allowed to handle this material.

Exposure Limits				
	OSHA PEL	ACGIH TLV	DFG MAK	Other Limits
n-Nonane	TWA 200 ppm	TWA 200 ppm	N/A	N/A
2,3,7,8-TCDD	NA	NA	NA	NA
2,3,7,8-TCDF	NA	NA	NA	NA
1,2,3,7,8-PeCDD	NA	NA	NA	NA
1,2,3,7,8-PeCDF	NA	NA	NA	NA
2,3,4,7,8-PeCDF	NA	NA	NA	NA
1,2,3,4,7,8-HxCDD	NA	NA	NA	NA
1,2,3,6,7,8-HxCDD	NA	NA	NA	NA
1,2,3,7,8,9-HxCDD	NA	NA	NA	NA
1,2,3,4,7,8-HxCDF	NA	NA	NA	NA
1,2,3,6,7,8-HxCDF	NA	NA	NA	NA
2,3,4,6,7,8-HxCDF	NA	NA	NA	NA
1,2,3,7,8,9-HxCDF	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF	NA	NA	NA	NA
1,2,3,4,7,8,9-HpCDF	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDD	NA	NA	NA	NA
OCDD	NA	NA	NA	NA
OCDF	NA	NA	NA	NA

Exposure Limits				
	OSHA PEL	ACGIH TLV	DFG MAK	Other Limits
1,2,3,4-TCDD- ¹³ C ₁₂	NA	NA	NA	NA
2,3,7,8-TCDD- ¹³ C ₁₂	NA	NA	NA	NA
2,3,7,8-TCDD- ³⁷ Cl ₄	NA	NA	NA	NA
2,3,7,8-TCDF- ¹³ C ₁₂	NA	NA	NA	NA
1,2,3,6,7,8-HxCDD- ¹³ C ₁₂	NA	NA	NA	NA
1,2,3,7,8,9-HxCDD- ¹³ C ₁₂	NA	NA	NA	NA
1,2,3,4,6,7,8-HpCDF- ¹³ C ₁₂	NA	NA	NA	NA
OCDD- ¹³ C ₁₂	NA	NA	NA	NA

SECTION IX-Physical/Chemical Properties

Boiling Point (degrees C): 150.8

Melting Point (degrees C): -53.7

Specific Gravity (Water=1): 0.7176

Vapor Pressure (mmHg): 3.22 @ 20°C

Vapor Density (Air=1): 4.41

Evaporation Rate (Butyl Acetate=1): <1

Solubility in Water: Insoluble

Appearance and Odor: Clear, colorless liquid, gasoline-like odor

SECTION X-Stability and Reactivity

Stability: Stable

Conditions to Avoid: Heat, sparks, or other sources of ignition.

Incompatible Materials: Oxidizing agents

Hazardous Dcmp Pdts: Acrid smoke, irritating fumes and toxic fumes of carbon monoxide, carbon dioxide, and various hydrocarbons.

Hazardous Polymerization: Will Not Occur

Conditions to Avoid: N/A

SECTION XI-Toxicological Information

Routes of Entry:

Inhalation? Yes **Skin?** Yes **Ingestion?** Yes

Carcinogenicity:

NTP? Suspect Carcinogen- 2,3,7,8-Tetrachlorodibenzo-p-dioxin & 2,3,7,8,-Tetrachlorodibenzofuran-¹³C₁₂

IARC? Human Carcinogen-2,3,7,8-Tetrachlorodibenzo-p-dioxin & 2,3,7,8,-Tetrachlorodibenzofuran-¹³C₁₂

OSHA? N/A



Symptoms of Exposure: Exposure to n-Nonane may cause irritation of the skin, eyes, respiratory tract, mouth and stomach, nausea, vomiting, depression and central nervous system excitement. It may be aspirated into the lungs resulting in pulmonary edema and chemical pneumonitis.

Toxicity Data:

n-Nonane
inhalation-rat LC₅₀: 3200 ppm/4H
intravenous-mouse LD₅₀: 218 mg/kg

The toxicological properties of this formulation have not been fully investigated. It should be assumed to have toxic effects and, therefore, procedures appropriate for the safe handling of hazardous chemicals should be followed.

SECTION XII-Ecological Information

No data available.

SECTION XIII-Disposal Considerations

Waste materials should be disposed of under conditions that meet Federal, State, and Local environmental control regulations. Contact a licensed waste disposal specialist to dispose of this material.

SECTION XIV- Transportation Information

DOT Proper Shipping Name: Nonanes UN #: 1920 Class: 3 Packing Group: III Small quantities excepted	IATA Proper Shipping Name: Nonanes UN #: 1920 Class: 3 Packing Group: III Small quantities excepted
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SECTION XV-Regulatory Information

EU Directives Classification

Symbol of Danger: F

Indication of Danger: Flammable.

R:10

Risk Statements:

Flammable

S: 9 16 23 33

Safety Statements: Keep container in a well-ventilated place. Keep away from sources of ignition-no smoking. Do not inhale gas/fumes/vapor/spray. Take precautionary measures against static discharges.

SECTION XVI-Other Information

The information contained herein is believed to be accurate and is supplied in good faith. Cerilliant Corporation makes no warranty with respect to and assumes no legal responsibility for use of or reliance upon this information. Individuals receiving this data must exercise their own judgement in determining its suitability for a particular purpose.