

MATERIAL SAFETY DATA SHEET

COMPOSITE TECHNOLOGY DEVELOPMENT, INC.
2600 CAMPUS DRIVE, SUITE D
LAFAYETTE, COLORADO 80026

EMERGENCY TELEPHONE NUMBER: (303) 664-0394

1. PRODUCT IDENTIFICATION

Trade Name and Synonyms
CTD-404 PART A

Chemical Name and/or Family or Description
Cyanate ester mixture

2. COMPOSITION/INFORMATION ON INGREDIENTS

Carcinogenicity
Not Reviewed by NTP, IARC, or OSHA.

<u>CHEMICAL NAME</u>	<u>CAS #</u>	<u>RANGE %</u>	<u>EXPOSURE LIMITS</u>
Trade secret	Mixture	100	OSHA - Not established ACGIH - Not established STEL - Not established CEIL - Not established

3. HAZARDS IDENTIFICATION

Emergency Overview:
Warning! Can cause eye irritation. May cause skin irritation and allergic reactions.
Primary Route(s) of Entry: Dermal

4. FIRST AID MEASURES

EYE	Flush eyes with water for at least 15 min. Get medical attention immediately.
SKIN CONTACT	Remove contaminated clothing and shoes. Wash with mild soap and plenty of water. Get medical attention if irritation occurs.
INHALATION	Remove to fresh air. Give artificial respiration if not breathing. If breathing is difficult, get medical attention.
INGESTION	Give 3-4 glasses of water. Do not induce vomiting. Do not give anything by mouth to an unconscious person. Get medical attention.

5. FIRE-FIGHTING MEASURES

FLASH POINT	>200°F (>93°C)
EXTINGUISHING MEDIA	CO ₂ ; dry chemical; water spray; foam
SPECIAL FIREFIGHTING PROCEDURES	Use self-contained breathing apparatus and full protective clothing
FIRE AND EXPLOSION HAZARDS	Closed containers may rupture (due to build-up of pressure) when exposed to extreme heat

6. ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE, BREAKAGE OR LEAK	Avoid all personal contact. Absorb onto absorbent material. Shovel into closable containers. Flush area with detergent. Do not flush residue into sewers discharging into domestic water systems or natural waterways. Wear protective equipment. Ventilate area.
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7. HANDLING AND STORAGE

STORAGE TEMPERATURE HANDLING/STORAGE	Minimum handling temperature for storage. Store in cool, dry area in closed containers. Avoid breathing vapor, mist or spray. Use only with adequate ventilation. Eye wash and safety shower should be available nearby when product is handled. For industrial use only.
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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EYES	Chemical goggles
SKIN	Lab coats or coveralls, and impervious rubber gloves.
INHALATION	Use NIOSH approved respirator suitable for organic vapors.
VENTILATION	Local Exhaust.
EXPOSURE LIMIT FOR PRODUCT	Not established

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM	Liquid
APPEARANCE AND ODOR	Yellowish, practically no odor
SOLUBILITY IN WATER	Practically insoluble
SPECIFIC GRAVITY	1.14
DECOMPOSITION TEMPERATURE	Not Determined

10. STABILITY AND REACTIVITY

STABILITY	Stable
INCOMPATIBILITIES	Contamination with acids, bases, amines, water, and transitional metal compounds can cause exothermic polymerization with release of considerable heat and gases.
HAZARDOUS DECOMPOSITION PRODUCTS	carbon monoxide, carbon dioxide, oxides of nitrogen and traces of hydrocyanic acid.
HAZARDOUS POLYMERIZATION	Will not occur.
CONDITIONS TO AVOID	Avoid temperatures >250°F in presence of catalytic species above.

11. TOXICOLOGICAL INFORMATION

ORAL LD ₅₀	>5g/kg, Rat
DERMAL LD ₅₀	>2g/kg, Rabbit
INHALATION	Not determined
SKIN IRRITATION	Mild, Rabbit

EYE IRRITATION
SENSITIZATION
MUTAGENICITY

Moderate, Rabbit
Not known
Not known

12. DISPOSAL CONSIDERATIONS

According to Federal, State, and Local regulations. Incinerate in a chemical incinerator equipped with after-burner and scrubber. This product is not considered to be a hazardous waste by RCRA.

13. TRANSPORT INFORMATION

DOT SHIPPING NAME	Not Regulated
DOT HAZARD CLASS	None
UN IDENTIFICATION NUMBER	None
PACKING GROUP	None
LABEL REQUIRED	None

14. ECOLOGICAL INFORMATION

Data not yet available

15. REGULATORY INFORMATION

OSHA STATUS	This MSDS has been prepared in compliance with Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. This product is not considered to be a hazardous chemical under that standard.
RCRA	Not a hazardous waste under RCRA (40 CFR 261)
TSCA INVENTORY STATUS	Chemical components listed on TSCA Inventory
SARA/TITLE III:	This product does not contain a toxic chemical under SEC. 313 (40 CFR 372)
CERLA	Not listed

16. OTHER INFORMATION

FOR TECHNICAL INFORMATION CONTACT:	DR. NASEEM A. MUNSHI COORDINATOR OF PRODUCT SAFETY
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COMPOSITE TECHNOLOGY DEVELOPMENT, INC 2600 CAMPUS DRIVE, SUITE D LAFAYETTE, CO 80026 (303) 664-0394	ISSUE DATE: 04/08/2003 REVISION DATE & NO.:
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THE INFORMATION AND RECOMMENDATIONS CONTAINED HEREIN ARE BASED UPON DATA BELIEVED TO BE ACCURATE. HOWEVER, NO GUARANTEE OR WARRANTY OF ANY KIND EXPRESSED OR IMPLIED IS MADE WITH RESPECT TO THE INFORMATION CONTAINED HEREIN.

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2600 CAMPUS DRIVE, SUITE D
LAFAYETTE, COLORADO 80026

EMERGENCY TELEPHONE NUMBER: (303) 664-0394

1. PRODUCT IDENTIFICATION

Trade Name and Synonyms

CTD-404 PART B EXPERIMENTAL HARDENER

Chemical Name and/or Family or Description

Proprietary experimental liquid hardener based on alkylphenol mixtures

CHEMICAL IDENTITY TRADE SECRET. COMPOSITION WILL BE REVEALED TO A HEALTH PROFESSIONAL IN THE CASE OF A MEDICAL EMERGENCY.

2. COMPOSITION/INFORMATION ON INGREDIENTS

Carcinogenicity

Not a carcinogen as considered by NTP, IARC, or OSHA.

<u>CHEMICAL NAME</u>	<u>CAS #</u>	<u>RANGE %</u>	<u>EXPOSURE LIMITS</u>
Nonylphenol mixture	85852-15-3	50-100	OSHA - Not established ACGIH - Not established STEL - Not noted CEIL - Not noted

3. HAZARDS IDENTIFICATION

Emergency Overview:

Caution! Harmful if ingested. Corrosive. Repeated skin contact may cause dermatitis. Repeated inhalation may cause lung disease.

4. FIRST AID MEASURES

EYE	Flush eyes with water for at least 15 min. Get medical attention immediately.
SKIN CONTACT	Remove contaminated clothing and shoes. Wash with mild soap and plenty of water. Get medical attention immediately.
INHALATION	Remove to fresh air. Give artificial respiration if not breathing. If breathing is difficult, get medical attention.
INGESTION	Give 2-3 glasses of water. Do not induce vomiting. Do not give anything by mouth to an unconscious person. Get medical attention.

5. FIRE-FIGHTING MEASURES

FLASH POINT	310°F PMCC
EXTINGUISHING MEDIA	CO ₂ ; dry chemical; water spray; foam
SPECIAL FIREFIGHTING PROCEDURES	Use self-contained breathing apparatus and protective clothing

6. ACCIDENTAL RELEASE MEASURES

ACCIDENTAL RELEASE, BREAKAGE OR LEAK	Avoid all personal contact. Absorb onto absorbent material. Shovel into closeable containers. flush area with detergent. Do not flush residue into sewers discharging into domestic water systems or natural waterways. Wear protective equipment. Ventilate area.
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7. HANDLING AND STORAGE

STORAGE TEMPERATURE HANDLING/STORAGE	Minimum handling temperature for storage. Store in cool, dry area in closed containers. Avoid breathing vapor, mist or spray. Use only with adequate ventilation. Eye wash and safety shower should be available nearby when product is handled. For industrial use only.
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8. EXPOSURE CONTROLS/PERSONAL PROTECTION

EYES SKIN	Chemical goggles Lab coats or coveralls, and impervious rubber gloves.
INHALATION	Use NIOSH approved respirator suitable for organic vapors.
VENTILATION	Local Exhaust.
EXPOSURE LIMIT FOR PRODUCT	Not established

9. PHYSICAL AND CHEMICAL PROPERTIES

PHYSICAL FORM	Viscous Liquid
APPEARANCE AND ODOR	Greenish; Phenolic odor
SOLUBILITY IN WATER	< 0.1
BOILING POINT	560°F
SPECIFIC GRAVITY	0.95
DECOMPOSITION TEMPERATURE	Not Determined

10. STABILITY AND REACTIVITY

STABILITY	Stable
INCOMPATIBILITIES	None
HAZARDOUS DECOMPOSITION PRODUCTS	Carbon monoxide, carbon dioxide, aldehydes and ketones.
HAZARDOUS POLYMERIZATION	Will not occur.
CONDITIONS TO AVOID	N/A

11. TOXICOLOGICAL INFORMATION

ORAL LD ₅₀	58g/kg RAT, moderate toxicity
DERMAL LD ₅₀	2.14g/kg rabbit, slightly toxic
INHALATION	Not determined
SKIN IRRITATION	Corrosive
EYE IRRITATION	Extremely irritating
SENSITIZATION	Negative

12. DISPOSAL CONSIDERATIONS

According to Federal, State, and Local regulations. Incinerate in a chemical incinerator equipped with after-burner and scrubber. This product is not considered to be a hazardous waste by RCRA.

13. TRANSPORT INFORMATION

DOT SHIPPING NAME	Alkylphenols, liquid, N.O.S. (phenol, nonyl-mixture)
DOT HAZARD CLASS	8
UN IDENTIFICATION NUMBER	3145
PACKING GROUP	III
LABEL REQUIRED	CORROSIVE; Marine pollutant (nonylphenol)

14. ECOLOGICAL INFORMATION

Aquatic toxicity: LC50-96hr Aquatic toxicity rating is <0.10ppm, extremely toxic.

Mobility: This product is hydrophobic and will strongly absorb to soils.

Persistence & Biodegradability: This product does not biodegrade readily in laboratory studies. However, in field studies, nonylphenol does not persist in the environment.

15. REGULATORY INFORMATION

OSHA STATUS	This MSDS has been prepared in compliance with Federal OSHA Hazard Communication Standard 29 CFR 1910.1200. This product is considered to be a hazardous chemical under that standard.
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TSCA INVENTORY STATUS	Chemical components listed on TSCA Inventory
SARA/TITLE III:	This product does not contain a toxic chemical under SEC. 313 (40 CFR 372)
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