SAFETY DATA SHEET

SECTION 1: IDENTIFICATION

Product Identifier

Product Name	F1 LOW ODOR EXTENDED CURE - PART B
Alternate Product ID	

Recommended Use of the Chemical and Restrictions on Use

Recommended use	Concrete Coating
Uses advised against	No data available

Details of the Supplier of the Safety Data Sheet

Distributor Address	Concrete Technology Inc. 8770 133rd Ave N. Largo, FL 33773

Emergency Telephone Number

Supplier phone number	800-447-6573
24 Hour emergency phone number	800-424-9300 (United States & Canada), International Call: 1-703-527-3887

SECTION 2: HAZARD(S) IDENTIFICATON

Hazard Classification

OSHA Regulatory Status

This chemical is considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Inhalation - Acute Toxicity	Category 4
Respiratory Sensitization	Category 1
Skin Sensitization	Category 1
Specific Target Organ Toxicity Single Exposure Respiratory	Category 3
Specific Target Organ Toxicity Repeated Exposure Inhalation (Lungs)	Category 3

Signal Word Danger!

Hazard Statements

H317: May cause an allergic skin reaction.
H332: Harmful if inhaled.
H334: May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335: May cause respiratory irritation.
H373: May cause damage to organs (Lungs) through prolonged or repeated exposure.

Pictograms

Precautionary Statements

Prevention

P171: Use only outdoors or in a well-ventilated area.
P261: Avoid breathing dust/fume/gas/mist/vapors/spray.
P280: Wear protective gloves/protective clothing/eye protection/face protection.
P284: In case of inadequate ventilation, wear respiratory protection that meets the requirements in OSHA's Respiratory Protection Standard (29 CFR 1910.134) or regional standards.

Response

P370 + P378: In case of fire, use water spray, carbon dioxide, dry chemical or foam for extinction.
P303+P361+P353: IF ON SKIN (or hair), Remove/take off immediately all contaminated clothing. Rinse skin with water/shower.
P304+P340: IF INHALED, remove victim to fresh air and keep at rest in a position comfortable for breathing.
P311: IF SWALLOWED, immediately call a POISON CENTER or doctor/physician.
P305+P351+P338: IF IN EYES, rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P331: Do NOT induce vomiting.
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.

Storage

P403+P233: Store in a well-ventilated place. Keep container tightly closed.
P235: Keep cool.
P405: Store locked up.

Disposal

P501 - Dispose of contents/container to an approved waste disposal plant in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Hazard(s) Not Otherwise Classified (HNOC)

None known

Other Information

Not applicable

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Hazardous Components

Chemical Name	CAS Number	Weight Percentage
Homopolymer of Hexamethylene Diisocyanate	28182-81-2	70-90
Dimethyl Glutarate	1119-40-0	10-20
Dimethyl Adipate	627-93-0	2-10

The specific chemical identity and/or exact percentage of component(s) have been withheld as a trade secret.

SECTION 4: FIRST AID MEASURES

First Aid Instructions/Measures

Eye Contact
In case of contact, flush eyes with plenty of lukewarm water for 15 minutes. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops or persists.

Skin Contact
In case of skin contact, wash affected areas with soap and water for 15 minutes. For minor skin contact, avoid spreading material on unaffected skin. Immediately remove contaminated clothing and shoes. Destroy or thoroughly wash clothing before reuse. Destroy or thoroughly clean shoes before reuse. Get medical attention if irritation develops or persists.

Inhalation
If inhaled, remove to fresh air and keep at rest in a position comfortable for breathing. If breathing is difficult, give oxygen. If not breathing, give artificial respiration. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Do not use mouth-to-mouth method if victim inhaled the substance. Get medical attention if irritation develops or persists.

Ingestion
If ingested, do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs naturally, have victim lean forward to reduce risk of aspiration. Give two glasses of water for dilution. Never give anything by mouth to an unconscious person or who is having convulsions. Do not use mouth-to-mouth method if victim ingested the substance. Call a physician immediately.

Most Important Symptoms and Effects, Both Acute and Delayed

Symptoms
May cause allergic skin reaction with symptoms of reddening, itching, swelling, pain and rash. May cause skin irritation with symptoms of reddening, itching, pain and swelling. May cause eye irritation with symptoms of reddening, tearing, stinging and swelling. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Inhalation may cause respiratory irritation with throat discomfort, coughing or difficulty breathing.

Indication of Any Immediate Medical Attention and Special Treatment Needed

Note to physicians
Provide general supportive measures and treat symptomatically. Ensure that medical personnel are aware of the material(s) involved and take precautions to protect themselves. Show this safety data sheet to the medical provider in attendance.

SECTION 5: FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Dry chemical, CO2, water spray and regular foam.

Unsuitable Extinguishing Media
High volume water jet/stream. This method may scatter and spread fire.

Specific Fire and Explosion Hazards Arising from the Chemical
Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. Combustible liquid. Vapors can

travel to a source of ignition and flash back. Explosive mixtures may occur at temperatures at or above the flashpoint. Autoignition may occur with cotton waste or similar combustible materials.

Hazardous Decomposition Products

Isophorone diamine, isobutyraldehyde, nitrogen oxides, carbon monoxide and carbon dioxide.

Special Protective Equipment and Precautions for Firefighters

Firefighters should wear NFPA approved self-contained breathing apparatus and full protective clothing. Avoid contact with product. Decontaminate equipment and protective clothing prior to re-use. Use cold water spray to cool fire-exposed containers to minimize the risk of rupture.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures

Wear appropriate personal protective equipment. Evacuate surrounding areas and isolate the area. Keep out of low areas. Remove all sources of ignition. Keep unnecessary and unprotected personnel from entering. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Implement site emergency response plan. For personal protection, see section 8 of this safety data sheet. Do not touch or walk through spilled material.

Environmental Precautions

Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers. Inform authorities if the product has caused environmental pollution (sewers, drains, waterways or soil).

Containment and Clean-up Measures

Cleanup personnel must use appropriate personal protective equipment. Evacuate and keep unnecessary personnel out of spill area. Remove all sources of ignition, including flames, heat, and sparks. Stop leak if without risk. Move containers from spill area. Dike or dam spilled material with non-combustible, absorbent material (e.g., sand, earth, vermiculite or diatomaceous earth) and control further spillage, where possible. Make certain the absorbent material soaks up all liquids.

SECTION 7: HANDLING AND STORAGE

Precautions for Safe Handling

Do not breathe vapors or spray mist. Avoid contact with eyes or skin. Avoid contact with clothing. Use only with adequate ventilation and personal protection. Remove contaminated personal protective equipment (PPE), then wash hands and face thoroughly after handling and before eating and drinking. Keep container closed when not in use. Empty containers retain product residue and can be hazardous. Do not get in eyes, on skin or on clothing. Do not ingest. Keep away from heat, sparks, flames and other sources of ignition. Avoid release to the environment. Store in tightly closed containers to prevent moisture contamination. Do not reseal if contamination with moisture is suspected. Follow all SDS/label precautions even after container is emptied because it may retain product residues.

Conditions for Safe Storage

Keep away from food products during use and storage. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled, unapproved or reactive containers. Use appropriate containment to avoid environmental contamination. Personnel education and training in the safe use and handling of this product are required under OSHA Hazard Communication Standard 29 CFR 1910.1200.

Incompatible Materials

Stable under recommended storage conditions. Avoid water, amines, strong bases, strong acids, alkalies, oxidizing agents, alcohols and copper alloys. Keep away from sources of ignition. No smoking. This material may have a low electrical conductivity and therefore may accumulate dangerous levels of static electricity. An ignitable vapor-air mixture can form inside

storage tanks. The user must be sure to dissipate static charge by careful bonding and grounding of all equipment, and personnel involved in fluid transfer should conduct continuity checks to prove effectiveness of bonding and grounding.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits/Guidelines

28182-81-2 Homopolymer of Hexamethylene Diisocyanate
STEL: 0.001 pm
TWA: 0.005 ppm
PEL: No data available

822-06-9 Hexamethylene-1,6- Diisocyanate
STEL: No data available
TWA: 0.005 ppm
PEL: No data available

Industrial Hygiene/Ventilation Measures

General dilution and local exhaust ventilation as necessary to control airborne vapors, aerosols (e.g., dusts, mists) and thermal decomposition products. Heating may result in generation of airborne vapors and/or aerosols.

Personal Protective Equipment

Respiratory protection

If vapors form, respiratory protection is recommended. The use of a positive pressure supplied air respirator is recommended if the airborne concentration is unknown or if spraying is performed in a confined space or area with limited ventilation. In spray applications, an organic vapor/particulate respirator or air supplied unit is necessary.

A respirator that is recommended or approved for use in isocyanate-containing environments, including air-purifying or fresh air-supplied, may be necessary for spray applications or other situations such as high temperature use that may produce unacceptable inhalation exposures. A supplied air respirator (either positive pressure or continuous flow-type) is recommended. Before an air-purifying respirator can be used, air monitoring must be performed to measure airborne concentrations of HDI monomer and HDI polyisocyanate. Specific conditions under which air-purifying respirators can be used are provided herein. Observe OSHA regulations for respirator use (29 CFR 1910.134).

When coatings containing isocyanate are spray applied, good industrial safety practice requires the use of some form of respiratory protection. During spray application of coatings containing this product, the use of a supplied-air (either positive pressure or continuous flow-type) respiratory is mandatory when one or more of the following conditions exist:

1. The airborne isocyanate concentrations are not known;
2. The airborne isocyanate monomer concentrations exceed 0.05 ppm averaged over eight (8) hours. This is 10 times the 8-hour TWA or the 15-minute STEL exposure limits.
3. The airborne polyisocyanate (polymeric, oligomeric) concentrations exceed 5 mg/m3 averaged over 8 hours or 10 mg/m3 averaged over 15 minutes. This is 10 times the 8-hour TWA or the 15-minute STE'L exposure limits.
4. Operations are performed in a confined space (See OSHA Confined Space Standard, 29 CFR 1910.146).

A properly fitted air-purifying (combination organic vapor and particulate) respirator, proven by test to be effective in isocyanate-containing spray paint environments, and used in accordance with all recommendations made by the manufacturer, can be used when all the following conditions are met:

1. The airborne isocyanate monomer concentrations are not known;

2. The airborne isocyanate monomer concentrations exceed 0.05 ppm averaged over eight (8) hours. This is 10 times the 8-hour TWA or the 15-minute STEL exposure limits.

3. The airborne polyisocyanate (polymeric, oligomeric) concentrations exceed 5 mg/m3 averaged over 8 hours or 10 mg/m3 averaged over 15 minutes. This is 10 times the 8-hour TWA or the 15-minute STE'L exposure limits.

4. A NIOSH-certified End-Of-Service-Life Indicator or a change schedule based upon objective information or data is used to ensure that cartridges are replaced before the end of their service life. In addition, pre-filters should be changed whenever breathing resistance increases due to particulate buildup.

During non-spray operations such as mixing, batch-making, brush, or roller application, etc., at elevated temperatures (such as in the case where material is heated or material is applied to a hot substrate), exposure to airborne isocyanate vapors is possible. In this case, when the coatings system is applied in a non-spray manner, a supplied-air (either positive pressure or continuous flow-type) respiratory is mandatory when one or more of the following conditions exists:

1. The airborne isocyanate concentrations are not known;

2. The airborne isocyanate monomer concentrations exceed 0.05 ppm averaged over eight (8) hours (10 times the 8-hour TWA exposure limit);

3. The airborne polyisocyanate (polymeric, oligomeric) concentrations exceed 5 mg/m3 averaged over 8 hours or 10 mg/m3 averaged over 15 minutes (10 times the 8-hour TWA or the 15-minute STEL exposure limits);

4. A NIOSH-certified End-Of-Service-Life Indicator or a change schedule based upon objective information or data is used to ensure that cartridges are replaced before the end of their service life. In addition, pre-filters should be changed whenever breathing resistance increases due to particulate buildup.

Hand protection
Permeation resistant gloves, Viton gloves, 4H laminate gloves, Butyl rubber gloves or Nitrile rubber gloves.

Eye protection
Chemical safety goggles or safety glasses with side-shields. Chemical safety goggles in combination with a full-face shield if a splash hazard exists.

Skin protection
Avoid all skin contact. Depending on the conditions of use, cover as much of the exposed skin area as possible with appropriate clothing to prevent skin contact. Where spray mist/vapor is anticipated, permeation resistant clothing is recommended.

Additional protective measures
Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Emergency showers and eye wash stations should be available.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Physical State:	Liquid
Appearance:	Transparent
Color:	Colorless to Pale Yellow
Odor:	Mild
Odor Threshold:	Not Available
Upper/Lower Flammability Limits:	Not Available
Vapor Pressure:	Not Available
Vapor Density:	Not Available
pH:	Not Available

Relative Density:	1.12 @ 70° F
Melting Point:	Not Available
Freezing Point:	Not Available
Solubility:	Insoluble
Initial Boiling Point/Range:	Not Available
Flash Point:	> 200° F
Evaporation Rate:	Not Available
Partition Coefficient: n-octanol/water:	Not Available
Auto-ignition Temperature:	Not Available
Decomposition Temperature:	Not Available
Viscosity:	Not Available
Volatile Organic Compounds (VOC):	< 50 g/L (mixed A&B)

SECTION 10: STABILITY AND REACTIVITY

Reactivity
Material is stable and non-reactive under normal conditions of use, storage and transport.

Chemical Stability
Material is stable under recommended storage conditions.

Possibility of Hazardous Reactions
Contact with moisture, other materials that react with isocyanates, or temperatures above 177°C (350°F) may cause polymerization.

Conditions to Avoid
Avoid extreme heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point. Air humidity and water.

Incompatible Materials
Water, amines, strong bases, strong acids, alkalies, oxidizing agents, alcohols and copper alloys.

Hazardous Decomposition Products
Carbon dioxide, carbon monoxide, oxides of nitrogen, dense black smoke, hydrogen cyanide, isocyanate, isocyanic acid, and other compounds unidentified.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on Likely Routes of Exposure
Likely routes of exposure include inhalation by direct contact and vapor inhalation, eye contact by direct contact, skin contact by direct contact and ingestion by direct contact.

Heath Effects and Symptoms

Acute
May cause allergic skin reaction with symptoms of reddening, itching, swelling, pain and rash. May cause skin irritation with symptoms of reddening, itching, pain and swelling. May cause eye irritation with symptoms of reddening, tearing, stinging and swelling. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea. Inhalation may cause respiratory irritation with throat discomfort, coughing or difficulty breathing.

Chronic
Not expected to cause adverse chronic health effects.

Delayed and Immediate Effects as well as Chronic Effects from Short and Long-Term Exposure

Product
No data available.

Components

28182-81-2 Homopolymer of Hexamethylene Diisocyanate

Acute oral toxicity	LD50: > 2500 mg/kg (rat, female)
Acute inhalation toxicity	LD50: > 0.390-0.543 mg/l/4h (rat, female)
Acute dermal toxicity	LD50: > 2000 mg/kg (rabbit)
	LD50: > 2000 mg/kg (rat)
Skin corrosion/irritation	Slight skin irritation. Skin sensitizer (rabbit, 4h)
Eye irritation	Slight irritant (rabbit)
Inhalation	Respiratory sensitizer (mouse)
STDT (One-time exposure)	May cause respiratory irritation

822-06-0 Hexamethylene-1,6-diisocyanate

Acute oral toxicity	LD50: > 746 mg/kg (rat, female)
Acute inhalation toxicity	LD50: > 0.124 mg/l/4h (rat, female)
Acute dermal toxicity	LD50: > 7000 mg/kg (rat)
Skin irritation	Corrosive (rabbit)
Eye irritation	Corrosive (rabbit)
Dermal	Sensitizer (human)
Respiratory	Sensitizer (guinea pig)

1119-40-0 Dimethyl Glutarate/627-93-0 Dimethyl Adipate Mixture

Acute dermal toxicity	LD50: > 2250 mg/kg (rabbit)
	LD50: > 2000 mg/kg (rat)
Acute inhalation toxicity	LC50: > 11 mg/l/4h (rat)
Acute oral toxicity	LD50: > 5000 mg/kg (rat)

Carcinogenicity
No carcinogenic substances as defined by IARC, NTP and/or OSHA.

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity

28182-81-2 Homopolymer of Hexamethylene Diisocyanate

Persistence and degradability	Not readily degradable
Bioaccumulative potential	Accumulation is not expected
Other adverse effect	An accumulation in aquatic organisms is not expected
Other information	LC0: > 82.8 mg/l (Zebra fish, 48h)

822-06-0 Hexamethylene-1,6-diisocyanate

Toxicity to fish	LC50 Danio rerio: > 100 mg/l/96h

1119-40-0 Dimethyl Glutarate/627-93-0 Dimethyl Adipate Mixture

Toxicity to fish	EC50 Fathead minnows: 18-24 mg/l/96h

Toxicity to algae	LOEC Desmodesmus subspicatus: 85 mg/l/72h NOEC Desmodesmus subspicatus: 36 mg/l/72h
Toxicity to aquatic invertebrates	EC50 Daphnia magna: 112-150 mg/l/48h
Persistence and degradability	Exposure time: 4 d - Result: 97% Readily biodegradable

Additional Ecotoxicological Remarks

Harmful to aquatic organisms, may cause long term adverse effects in the aquatic environment.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste Disposal Method

Dispose in accordance with Federal, State, and Local laws and regulations. The generation of waste should be avoided or minimized wherever possible. Empty containers should be taken to an approved waste handling site for recycling or disposal. Incineration or landfill should only be considered when recycling is not feasible. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Empty Container Precautions

Recondition or dispose of empty container in accordance with governmental regulations. Do not reuse empty container without proper cleaning. Empty containers retain product residue (dust, liquid, vapor and/or gases) and can be dangerous. Do not heat or cut container with electric or gas torch.

SECTION 14: TRANSPORT INFORMATION

Land Transport (DOT)	Not regulated
Sea Transport (IMDG)	Not regulated
Air Transport (ICAO/IATA)	Not regulated

SECTION 15: REGULATORY INFORMATION

United States Federal Regulations

28182-81-2 Homopolymer of Hexamethylene Diisocyanate

U.S. – CERCLA/SARA – Hazardous Substances and their Reportable Quantities: None
U.S. – SARA – Section 311/312 Hazard Categories: Acute Health Hazard, Chronic Health Hazard
U.S. – CERCLA/SARA – Section 302 Extremely Hazardous Substances TPQs: None
U.S. – CERCLA/SARA – Section 313 – Emissions Reporting: None
U.S. – CERCLA/SARA – Section 313 – PBT Chemical Listing: None

U.S. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A) Components: None

U.S. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 372.65) Supplier Notification Required Components: None

U.S. Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261): Under RCRA it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste.

1119-40-0 Dimethyl Glutarate/627-93-0 Dimethyl Adipate Mixture

This product is not known to be a “Hazardous Chemical” as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200

US Toxic substances Control Act: Listed on the TSCA inventory

US OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050): Not Regulated

Superfund Amendments and Reauthorization Act of 1986 (SARA):

Hazard Categories	Immediate Hazard	No
	Delayed Hazard	No
	Fire Hazard	No
	Pressure Hazard	No
	Reactivity Hazard	No

SARA 302 Extremely hazardous substance

Chemical Name	CAS Number	Reportable Quantity	Threshold Planning Quantity
Hydrogen Cyanide	74-90-8	10	100 lbs

SARA 311/312 Hazardous Chemical: No

SARA 313 (TRI reporting): Not regulated

US State Regulations

28182-81-2 Homopolymer of Hexamethylene Diisocyanate

State Right-To-Know Information: The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the SDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

Chemical Name	CAS Number
Homopolymer of Hexamethylene Diisocyanate	28182-81-2
Hexamethylene-1,6-diisocyanate	822-06-0

U.S. – California – Proposition 65 – Carcinogens List: None
U.S. – California – Proposition 65 – Developmental Toxicity: None
U.S. – California – Proposition 65 – Maximum Allowable Dose Levels (MADL): None
U.S. – California – Proposition 65 – No Significant Risk Levels (NSRL): None
U.S. – California – Proposition 65 – Reproductive Toxicity – Female: None
U.S. – California – Proposition 65 – Reproductive Toxicity – Male: None

1119-40-0 Dimethyl Glutarate/627-93-0 Dimethyl Adipate Mixture

US - California Proposition 65 - WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

Contains: < 0.1% Methanol
Contains: < 2ppm Hydrogen Cyanide

US - California Proposition 65 - CRT: Listed date/Developmental Toxin: METHANOL (CAS 67-56-1) Listed 03/16/2012

US - California Proposition 65 - CRT: Listed date/Male Reproductive Toxin: HYDROGEN CYANIDE (CAS 74-90-8) Listed 07/05/2013

SECTION 16: OTHER INFORMATION

HMIS Ratings
Health - 2 Flammability - 1 Physical Hazard - 1

NFPA Ratings
Health - 2 Flammability - 1 Instability - 1

Issue Date, Revision Date and SDS Version Number
This information is found at the "Footer" of the Safety Data Sheet (all pages). See below.

Disclaimer
The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.