

# Submittals

## SPECIFICATIONS:

### SPECIFICATION 1 – GENERAL:

#### 1.0 Polyurethane Material

- 1.1 The material used for lifting pavements (including base material where applicable) and sealing all drainage structures shall be a two – part, water blown, closed cell, high-density polyurethane system.
- 1.2 The material shall have a free rise minimum density of 3.0 lbs/cubic ft. (48 kilograms per cubic meter) and a minimum compressive strength of 40 PSI.
- 1.3 The material shall be a polyurethane-forming mixture, having water insoluble diluents, which permit the formation of polyurethanes in excess water. The presence of these water insoluble diluents provides polyurethane foam with improved dimensional stability properties. This formula and these characteristics must be certified by the chemical supplier prior to installation.
- 1.4 The high-density polyurethane formulation shall reach 90% of full compressive strength within 15 minutes from the time of installation.

#### 2.0 Testing and Data

2.1 All testing and data information related to the product and as required below shall be part of the bid document:

- ✓ A. Material safety data sheets for all pertinent production material.
- ✓ B. A certificate of compliance from the manufacturer of the polyurethane component materials to be used. The certification shall include the results of density and compressive strength analysis performed in accordance with ASTM D 1622 and ASTM D 1621 respectively.
- ✓ C. A report from an industrial hygienist who has conducted a personnel review, production vehicle review, and typical job-site safety review of the contractor's implementation procedures involving the polyurethane component chemicals.
- ✓ D. A test procedure for delivery of the contractor's polyurethane material in a simulated slab, with a report of actual performance, with regard to material spread, density, and compressive strength in both dry and wet conditions.
- ✓ E. A copy of the contractor's employee safety manual specific to polyurethane pavement lifting and drainage structure sealing.

## TERRATHANE™ Polyurethanes

TerraThane™ Polyurethanes by NCFI are uniquely formulated for a variety of geotechnical applications. Each batch goes through stringent testing and quality assurance standards to ensure reliability in the field.

### 24-003 APPLICATIONS

Bridge Approaches and Departures  
Highway and Streets  
Airport Runways and Taxiways  
Concrete Slab Lifting  
Joint Matching  
Void Filling  
Deep Soil Injection

## About 24-003

TerraThane™ 24-003 is a hydrophobic/hydro-insensitive, MDI-based polymer formula that is specially designed for exceptional flow or spread under concrete structures when water is present. The 24-003 flowability ensures voidfill and support before lifting. 24-003 is available with an NSF/ANSI 61 Section 5 – 2017 certification.

### Reaction Curve at 110°

Cream Time	7 seconds
Gel Time	13 Seconds
Tack Free Time	19 seconds



CERTIFIED TO  
NSF/ANSI 61

## Physical Properties

Physical Properties	Test Method	Free Rise	Restrained
Density	ASTM D1622	4.0 pcf	5-6 pcf
Compressive Strength	ASTM D1621	68 psi	80-100 psi
Compressive Modulus	ASTM D1621	1900 psi	2400-3200 psi
Tensile Strength	ASTM D1623	79 psi	100-120 psi
Tensile Modulus	ASTM D1623	1446 psi	3100 psi
Water Absorption	ASTM D2842	≤ 0.04 lbs/ft <sup>2</sup>	≤ 0.04 lbs/ft <sup>2</sup>
Closed Cell Content		>92%	>92%
Max Service Temp		200°F	200°F
Elongation	ASTM D1623	5.1%	
Shear Strength	ASTM C273	52.0 psi	90 psi
Shear Modulus	ASTM C273	602 psi	677 psi
Flexural Strength	ASTM D790	80 psi	387 psi
Flexural Modulus	ASTM D790	1625 psi	13502 psi

TerraThane Geotechnical Division • NCFI Polyurethanes

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TERRATHANE™

24-003  
Technical Data Sheet



## Special Testing/Certifications

NYDOT Hydro-insensitivity test, GTP-9		>96% density retention >93% comp str retention	
Dimensional stability, % volume change, 28 day aging (ASTM D-2126)	Heat age at 158°F	Freezer at -20°F	Humid age at 100% RH & 120°
	-1.5%	-0.1%	-1.0%

## Performance

*Wet Environments...* **Excellent**

*Lifting Capacity...* **Excellent**

## Chemical Resistance

*Solvents...* **Excellent**

*Mold and Mildew...* **Excellent**

## Component Properties

Component	B-24-003	A2-000
Appearance	Transparent Liquid	Clear Brown Liquid
Brookfield Viscosity @ 20rpm	500 cps at 72°	200 cps at 72°
Specific Gravity	1.07	1.24
Weight per Gallon	8.9 lbs	10.3 lbs
Storage Temperature	50° - 100°F	50° - 110°F

## Processing Parameters

ISO Temperature	100° - 120°F
Poly Temperature	100° - 120°F
Mixing Pressure	800 psi static, 600 psi dynamic, 1000/800 preferred

## Mix Ratio

By weight...100 parts poly : 116 parts iso

By volume...100 parts poly : 100 parts iso

## Storage and Handling

Store the poly from 50°F to 90°F. Avoid moisture contamination during storage, handling, and processing. For both components, pad containers and day tanks with either nitrogen or dry air (desiccant cartridge or air dryer @ -40°F dew point). For optimum shelf life, the recommended storage temperature for iso is 50°F to 110°F. **Do not expose iso to lower temperatures – freezing may occur.** Store components at 70°F to 90°F for several days prior to use to minimize components being too viscous at time to take to field. Shelf life is 6 months for factory sealed containers.

## Application Cautions

Careful consideration should be given to selection and application of any NCFI Polyurethane foam system where excessive foam mass build-up can occur. Excessive polyurethane foam lift thickness will result in high internal temperatures within the injected foam, which can result in degraded foam properties, or in extreme cases, fire or spontaneous combustion. **Any flammability rating contained in this literature is not intended to reflect hazards presented by this or any other material under actual fire conditions.** Each person, firm or corporation engaged in the application, installation or use of any polyurethane product should carefully determine whether there is a potential fire hazard associated with such product in a specific usage, and utilize all appropriate precautionary and safety measures. Please consult NCFI Polyurethanes for safety considerations, polyurethane system selection and application recommendations.

The Information contained herein is believed to be reliable, but no representations, guarantees or warranties of any kind are made as to its accuracy, suitability for particular applications or the results to be obtained there from. The information is based on laboratory work with small-scale equipment and does not necessarily indicate end product performance. Because of the variation in methods, conditions and equipment used commercially in processing these materials, no warranties or guarantees are made as to the suitability of the products for the application disclosed. Full-scale testing and end product performance are the sole responsibility of the user. NCFI Polyurethanes shall not be liable for and the customer assumes all risk and liability of any use or handling of any material beyond NCFI's direct control. NCFI MAKES NO WARRANTIES, EXPRESSED OR IMPLIED, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OR MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Nothing contained herein is to be considered as permission, recommendations, nor as an inducement to practice any patented invention without permission of the patent owner.

**TERRATHANE™**

**24-003**  
Technical Data Sheet

# Material Safety Data Sheet



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Dalton, GA

Hickory, NC

Mount Airy, NC

Salt Lake City, UT

## PRODUCT IDENTIFICATION

**Trade Name:** NCFI 24-003 R

**Chemical Family:** Polyol Resin System

**Chemical Name:** Mixture

**Formula:** N/A

**Synonyms:** Polyurethane Resin

**Date Prepared:** 04/30/08

## INGREDIENTS-HAZARD CLASSIFICATION

Name:	CAS NO.	%	PEL
1,1,1,3,3-Penta Fluoropropane <sup>1</sup> (CF <sub>3</sub> CH <sub>2</sub> CHF <sub>2</sub> or HFC-245fa)	460-73-1	< 4	None Established. 300 ppm TWA recommended.
Tertiary Amine Catalysts <sup>1</sup>		< 1	None Established.

<sup>1</sup> Not listed as a carcinogen (NTA, IARC, OSHA)

## SHIPPING INFORMATION

Not regulated when shipped by land, water or air.

## PHYSICAL DATA

**Boiling Point (°F):** CF<sub>3</sub>CH<sub>2</sub>CHF<sub>2</sub>, 60°F

**Specific Gravity:** 1.07

**Solubility in Water:** Slight

**% Volatile by Volume:** 3

**Appearance and Odor:** Brown liquid, ethereal odor

## FIRE AND EXPLOSION HAZARD DATA

**Flash Point (test method):** After CF<sub>3</sub>CH<sub>2</sub>CHF<sub>2</sub> evaporation, >200°F (P-M)

**Flammable Limits (vapor)**

**Extinguishing Media:** Water, dry chemicals, CO<sub>2</sub>

Lower: None; Upper: None

**Special Fire Fighting Procedures:** A self-contained breathing apparatus should be worn to protect against toxic and irritating vapors.

**Unusual Fire and Explosion Hazards:** Overheated containers may rupture due to pressure produced by CF<sub>3</sub>CH<sub>2</sub>CHF<sub>2</sub>. CF<sub>3</sub>CH<sub>2</sub>CHF<sub>2</sub> burns to form acids and noxious gases.

## REACTIVITY DATA

**Stability:** Stable

**Conditions to Avoid:** Temperatures over 85°F

**Polymerization:** Will not occur

**Conditions to Avoid:** N/A

**Incompatibility:** Isocyanates and other chemicals that react with hydroxyl groups.

**Hazardous Decomposition Products:** When burned; CO, CO<sub>2</sub>, NO<sub>x</sub>, aliphatic fragments, halogens, halogen acids and possibly carbonyl halides.



## HEALTH HAZARD DATA

**Permissible Exposure Limit:** None established.

**Effects of Overexposure:** May cause skin or eye irritation upon contact. Avoid breathing vapors. The dense vapors can displace and reduce breathing air in confined or unventilated spaces causing asphyxiation. Overexposure may cause tremors, confusion, irritation, and may result in cardiac sensitization.

### First Aid Procedures

**Eyes:** Flush with water for at least 15 minutes. See a physician if irritation develops.

**Skin:** Wash with soap and water at first opportunity.

**Inhalation:** Move to fresh air if symptoms develop. If breathing is difficult, give oxygen and call physician.

**Ingestion:** Induce vomiting; get medical attention.

## SPECIAL PROTECTION INFORMATION

**Ventilation:** Local exhaust ventilation is recommended when working with this product. Uses requiring heating and/or spraying may require more ventilation or personal protective equipment.

**Respiratory Protection:** The specific respirator selected must be based on contamination levels of this material found in the workplace and the working limits of the respirator. A supplied air, full-face mask, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold limit values. A positive pressure, self contained breathing apparatus can be used in emergencies or other unusual situations. Full-face air purifying respirators equipped with organic vapor cartridges can be used in certain situations, *see OSHA standard 29CFR 1910.134*. All equipment must be NIOSH approved and maintained.

**Eye Protection:** Goggles or chemical safety glasses.

**Gloves:** Chemically resistant rubber or plastic.

**Other:** Avoid eye and skin contact. Eye wash system and showers should be available.

## SPILL OR LEAK PROCEDURES

Remove or extinguish ignition or combustion sources.

Contain spill. Absorb with sawdust, etc., and shovel into container. Waste material should be disposed of under conditions which meet federal, state, and local environmental regulations.

Wash area with detergent and water.

## SPECIAL PRECAUTIONS

Store between 65°F and 85°F out of sunlight. Keep tightly sealed. Relieve pressure slowly when opening container. R Component drums can be sent to drum reconditioners or disposed of as ordinary industrial waste in compliance with pertinent regulations.

**CAUTION:** Under no circumstances should empty drums be burned or cut open with an electric or gas torch.

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## PRODUCT IDENTIFICATION

**Trade Name:** NCFI 24-003 A

**Chemical Family:** Aromatic Isocyanate

**Chemical Name:** Polymethylene polyphenylisocyanate

**Formula:** N/A

**Synonyms:** Polymeric MDI

**Date Prepared:** 04/30/08

## INGREDIENTS-HAZARD CLASSIFICATION

Name:	CAS NO.	%	PEL
Diphenylmethane diisocyanate (MDI) <sup>1</sup>	101-68-8	50	0.02 ppm ceiling
Higher polymers of similar structure	9016-87-9	50	None Established.

<sup>1</sup> Not listed as a carcinogen (NTA, IARC, OSHA)

## SHIPPING INFORMATION

Not regulated when shipped by land, water or air when packaged in single containers of 5000 pounds or less.

## PHYSICAL DATA

**Boiling Point (°F):** 625°F

**Specific Gravity:** 1.24

**Solubility in Water:** Insoluble, reacts

**% Volatile by Volume:** None

**Appearance and Odor:** Brown liquid, slight aromatic odor

## FIRE AND EXPLOSION HAZARD DATA

**Flash Point (test method):** 390°F (P-M)

**Extinguishing Media:** Water, dry chemicals, CO<sub>2</sub>

**Special Fire Fighting Procedures:** A self-contained breathing apparatus should be worn to protect against toxic and irritating vapors.

**Unusual Fire and Explosion Hazards:** At temperatures above 400°F, MDI can polymerize/decompose causing pressure build-up in closed containers and possibly rupture. Avoid water contamination in closed containers which may cause rupture (CO<sub>2</sub> is evolved).

## REACTIVITY DATA

**Stability:** Stable

**Conditions to Avoid:** Contamination with water

**Polymerization:** May occur from contact with water, alcohols, glycols or other materials containing active hydrogens.

**Incompatibility:** Water, alcohols, amines, strong bases.

**Hazardous Decomposition Products:** By high heat or fire; CO, CO<sub>2</sub>, NO<sub>x</sub>, benzene, toluene, aliphatic fragments and traces of HCN



## HEALTH HAZARD DATA

**Permissible Exposure Limit:** 0.02 ppm ceiling for MDI.

**Effects of Overexposure:** May cause skin or eye irritation upon contact. Inhalation of MDI vapors may cause breathlessness, chest discomfort, coughing and reduced pulmonary functions. Exposure may produce asthma-like symptoms, also may lead to allergic sensitivity.

### First Aid Procedures

**Eyes:** Flush with flowing water for at least 15 minutes, then obtain medical attention.

**Skin:** Remove contaminated clothing and wash off with soap & water.

**Inhalation:** Remove to fresh air, administer oxygen if necessary.

**Ingestion:** Drink large amounts of water. See a physician.

## SPECIAL PROTECTION INFORMATION

**Ventilation:** MDI has a very low vapor pressure at room temperature. General/local ventilation typically control exposure levels very adequately. Uses requiring heating and/or spraying may require more aggressive engineering controls or personal protective equipment. Monitoring is required to determine engineering controls.

**Respiratory Protection:** The specific respirator selected must be based on contamination levels of this material found in the workplace and the working limits of the respirator. A supplied air, full-face mask, positive pressure or continuous flow respirator or a supplied air hood is required when airborne concentrations are unknown or exceed threshold limit values. A positive pressure, self contained breathing apparatus can be used in emergencies or other unusual situations. Full-face air purifying respirators equipped with organic vapor cartridges can be used in certain situations, *see OSHA standard 29CFR 1910.134*. All equipment must be NIOSH approved and maintained.

**Eye Protection:** Wear goggles or chemical safety glasses.

**Gloves:** Chemically resistant rubber or plastic.

**Other:** Avoid eye and skin contact. Eye wash system and safety showers should be available.

## SPILL OR LEAK PROCEDURES

Contain spill. Absorb with sawdust, etc., and shovel into open top drum. Decontaminate absorbent and spill area with 2% detergent/water solution. Let waste stand for 1 to 2 days, then dispose of waste in a licensed facility. Respiratory protection/ventilation is recommended during clean-up.

## SPECIAL PRECAUTIONS

Store between 65°F and 85°F out of sunlight. Keep tightly sealed to prevent moisture contamination. Relieve pressure slowly when opening container. Once opened, protect contents from water with dry atmosphere (-40°F dew point). If isocyanate becomes contaminated, do not reseal. Empty isocyanate drums or other container should be decontaminated by filling with water or decontamination solution, preferably outdoors. Allow to stand for 24-48 hours, open to the atmosphere. **DO NOT SEAL DRUMS OR CONTAINERS.** Drain the drums and puncture to prevent reuse. Dispose of as ordinary industrial waste.

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Date Prepared: 2/22/89

Last Revision Date: 6/16/00

## SARA 313 INFORMATION

The isocyanate (A) component product of this NCFI system contains the following chemical(s) subject to the reporting requirements of Section 313 of Title III of the Superfund Amendments and Reauthorization Act (SARA) of 1986, EPCRA Section 313 (40 CFR 372) and the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA).

<u>CHEMICAL NAME</u>	<u>CAS NUMBER</u>	<u>CERCLA RQ</u>	<u>CONCENTRATION</u>
Methylene Bis Phenylisocyanate (Same as Diphenylmethane diisocyanate (MDI))	101-68-8	5000 lbs.	See MSDS - A Component
Polymeric Diphenylmethane diisocyanate	9016-87-9		See MSDS - A Component

## IMPORTANT NOTICE

This notification is a part of the Material Safety Data Sheet document and must not be detached. Any copying and redistribution of the Material Safety Data Sheet shall include copying of this notice and attaching the copy to the redistributed Material Safety Data Sheet copies.



This report contains an Industrial Hygiene Review of  
Personnel, Production Vehicle and Job-Site Safety  
Of the Lift and Stabilization Process performed by

Nortex Concrete Lift and Stabilization, Inc.  
201 NW 26<sup>th</sup> St  
Fort Worth, TX 76164

Review performed on April 3, 2009  
Michele D. Smith, CIH  
ABIH#: 7882



Michele D. Smith, CIH  
845 Edgehill Rd  
Burleson, TX 76028  
817.366.2342

## **INTRODUCTION**

Michele Smith, CIH performed a review of the lift and stabilization process used by Nortex Concrete Lift and Stabilization. The review included a personnel review, a production vehicle review and a job-site safety review of the implementation of the procedures involving the polyurethane component system.

Nortex Concrete Lift and Stabilization (Nortex) is a licensed contractor that specializes in lifting and stabilizing concrete panels using specialized polyurethane foam systems. The process is designed for lifting curb sections, re-aligning mismatched joints along highways and streets, raising and stabilizing bridge approaches and departures, repairs to airport runways and taxiways, soil densification, residential and commercial concrete slab repair, etc.

## **TECHNICAL APPROACH**

The basic process involves using a box truck as a mobile unit. The crew chief performs a checklist inspection of the truck and truck contents before the start of each day. A diesel-mounted generator is contained in a front section of the box and is exhausted to the outside air. The 'generator room' also has a door to close it off from the remaining portion of the box and decrease noise levels in the direction of the workers. Two plastic totes within wire cages, with a holding capacity of 2500 pounds of product each, contain the two liquid parts of the polyurethane product. A drill is used to create a 5/8" diameter hole into the surface that is to be leveled. A tight fitting gun sleeve is inserted into the hole. The product is pumped through two separate hoses using an air gun and through the tube that is inserted into the drilled hole, and into the void spaces beneath the surface. The two parts meet at the discharge gun and are injected at approximately 1000 psi. The two parts take approximately 15-20 seconds to react and then to expand the polyurethane foam into the void spaces beneath the surface. A lifting gauge is used to determine when the product is beginning to fill the void and to raise the surface. The product is pumped into the space until the area reaches its desired lift. Once the surface has been lifted to the required level, a non-expansive concrete grout is used to seal the hole.

Depending on the size of the area to be lifted, terrain, amount of lift necessary, and any other physical parameters known about the area, holes are drilled at six to eight foot intervals throughout the area. Depending on the size of the panel to be lifted, two guns may be used to simultaneously lift a larger area to ensure the most effective and even lift of the panel.

## **MATERIALS REVIEWED**

- Nortex Work Plan
- Nortex Statement of Policy (commitment to Safety)
- Nortex Equipment List
- Technical data sheet for the NCFI 24-003 (urethane foam system) from the manufacturer
- MSDSs for NCFI R-24-003 (polyurethane resin) and NCFI ES A-24-0003 (Polymeric MDI) [2 parts of the system]
- A report by BaySystems North America, LLC as to the environmental impact of the polyurethane foam, and its possible effects of leaching



- Visually reviewed the entire process: from marking the area off through sealing with concrete grout and cleaning the area

### **SUMMARY OF FINDINGS**

The process was observed beginning with a review of the area to be lifted. Employees considered the area and determined safety measures to be taken before beginning work. Employees wore high visibility vests and hard hats, marked the area off with orange cones, and made decisions with safety as a high priority throughout the process. The crew had a person designated as the safety representative. Through interviewing the persons performing the work, and the safety representative, employees demonstrated they were familiar with the safety protocol for the process. Employees verified that safety training is a part of their weekly meetings. Crew chiefs verified that the checklist is performed before each work-day. Employees are provided with high visibility vests, hardhats, gloves, safety glasses, and hearing protection which are worn throughout the process. Employees supply their own safety shoes that are also required for this operation.

The process was performed using the recommendations found in the Technical Data Sheet provided by the manufacturer of the product being used. The personal protective equipment used was appropriate based on the safety hazards of the area and the physical hazards of the material, according to the MSDSs for the components of the product. A portable eyewash station is mounted within the box truck as a safety measure. The work area is outdoors and is well ventilated. No odor was apparent during the review. The hoses transporting the two components to the gun, as well as the air hose, are all bound in an insulating foam encasing and sealed with tape to protect the hoses from physical damage through friction or sharp edges.

### **Conclusion**

No additional hazards were identified that were not already addressed in the process. No additional recommendations were identified. No additional personal protective equipment or protective measures against personnel exposure were identified.

*Michele Smith, CIH cannot predict what will happen in the future. I have made every reasonable effort, based on the information supplied to me, through the visual demonstration of the process and written documents, to provide an accurate report. Michele Smith, CIH accepts no liability for any incident or regulatory impact that occurs through this process, either directly or indirectly.*



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***Report of Results for NCFI Polyurethanes  
TerraThane System 24-003  
Hydrophobic/Hydro-Insensitive  
Geotechnical Polymer.  
Per Test Method NMDOT GTP-9***





This report is a compilation of the data generated from foam made on August 6, 2020.

NCFI has previously conducted testing per NMDOT GTP-9. When conducting this test, we modified our procedure to avoid some pitfalls witnessed previously.

The NMDOT GTP-9 test procedure calls for the panel lid to be screwed down to the base with 1.5-inch wood screws. The pressure generated by the molding of the foam is great and many of the screw heads are pulled into the wood. We use a washer on the screw head to help disperse the pressure and we would use a fresh hole in the wood for each test. We also place 4 full drums of chemical or more than 2000 pounds on the panel lid to help hold it down.

Any ability by the foam to push the panel open by either pulling the screw head into the lid and/or stripping the screw from the used holes will distort the measurements made in the test. Expansion of the panel causes the foam to be less dense and a less dense foam is also a weaker foam.

# Hydro-Insensitivity of High Density Polyurethane Grout - Panel Test Data Sheet

Polymer Type & Manufacturer NCFI Polyurethane Foam System 24-003

Lot # & Date on Component Containers Resin, mfg'd 8/6/2020

## PROPORTIONING EQUIPMENT

Proportioner PMC PH-40

Hose Length (ft.) 50 ft.

Gun GX-7

Gun Set-up 42/42 pour module

A/B/H Temperature (°F) 110°/110°/110°

A/B Pressure (psi) 1000 static / 800 dynamic

## CALIBRATION TEST

11:05:00 Time at Beginning of Injection (HH:MM:SS)

11:05:22 Time at End of Injection (HH:MM:SS)

5 Sample Weight (lbs.) vs. NA Certified Flow Meter Weight (lbs.)

## INJECTION PROCEDURE – DRY INJECTION PROCEDURE - WET

✓ (✓) 5 lbs. of Material Injected  
into Box

✓ (✓) After 10 minutes, Remove Top Cover

✓ (✓) After 30 minutes, Sample the HDP

✓ (✓) Add 15 lbs. of Water into  
Box

✓ (✓) 5 lbs. of Material  
Injected into Box

✓ (✓) After 10 minutes,  
Material Remove Top Cover

✓ (✓) After 30 minutes, Sample  
the HDP Material

## MATERIAL ANALYSIS

### Dry Injection Shots

	Density (pcf)	Compressive Strength (psi)
Sample 1	<u>4.34</u>	<u>72.51</u>

### Wet Injection Shots

	Density (pcf)	Compressive Strength (psi)
	<u>4.16</u>	<u>48.04</u>

% Retention of  
Density



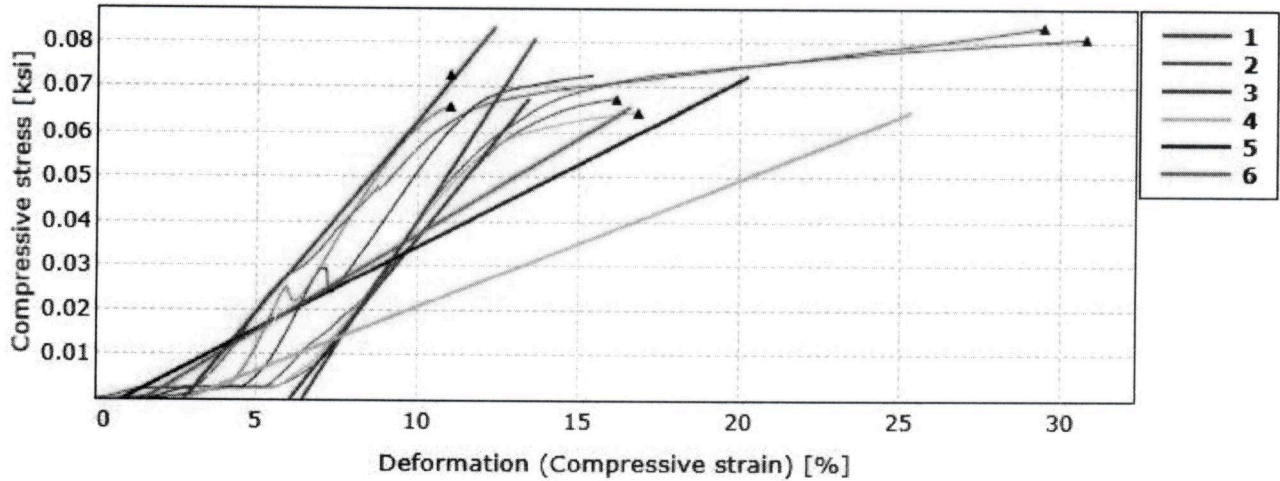
Sample 1 96%

Technician Ellis Wysinger/Steve Barnes

Date 9/30/2020

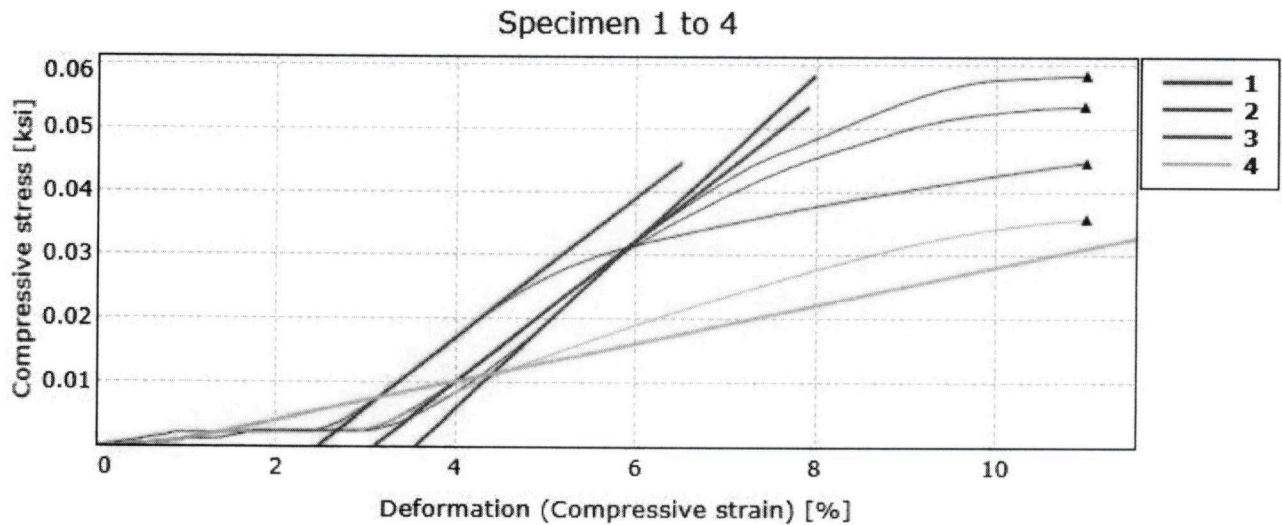
# **TEST RESULTS** **GTP-9 DRY TEST RESULTS**

Specimen 1 to 6



	Compressive Strength @ Max Load [psi]	% Deformation at Max Load [%]	Compressive Strength @ 10% Deformation [psi]	Load at 10 % Deformation [lbf]	Modulus (Automatic Young's) [psi]
1	83.37	29.42	56.48	225.92	865.16
2	80.85	30.73	39.86	159.46	1121.66
3	67.65	16.18	36.14	144.56	914.15
4	64.77	16.86	39.34	157.37	287.73
5	72.63	15.41	51.20	204.79	280.33
6	65.79	11.00	61.29	245.14	436.28
Mean	72.51	19.94	47.39	189.54	650.88

## **GTP-9 WET TEST RESULTS**

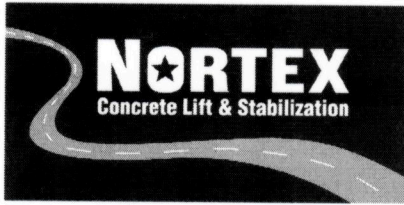


	Compressive Strength @ Max Load [psi]	% Deformation at Max Load [%]	Compressive Strength @ 10% Deformation [psi]	Load at 10 % Deformation [lbf]	Modulus (Automatic Young's) [psi]
1	44.66	11.00	42.61	170.46	1104.90
2	53.40	10.99	52.46	209.84	1107.76
3	58.34	10.99	57.65	230.60	1317.14
4	35.76	11.00	34.11	136.42	299.24
Mean	48.04	11.00	46.71	186.83	957.26

### SUBMERGED PERFORMANCE TESTING RESULTS

172-25 Test 1 Dry		172-25 Test 2 Wet		
Test Sample Name #	Compressive Strength [psi]		Compressive Strength [psi]	%Differential
Sample 1	88.38	Sample 1	86.18	2%
Sample 2	89.68	Sample 2	87.56	2%
Sample 3	93.36	Sample 3	90.68	3%
Sample 4	89.1	Sample 4	85.21	4%
Sample 5	96.49	Sample 5	93.01	4%
<b>Average:</b>	<b>91.40</b>	<b>Average:</b>	<b>88.53</b>	<b>3%</b>





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# Safety Policy

Nortex Concrete Lift & Stabilization, Inc. has a strong commitment to provide a safe workplace and to establish policies promoting high standards of employee health and safety, while delivering to the customer the highest quality product. In keeping with this commitment, it is the company's intent to maintain a Positive Safety Program and a Substance Abuse Program. Our employees will conduct both themselves and their work in a safe manner consistent with good construction practices.

Responsibility for achieving our safety goals is that of site superintendents, supervisors, employees, and the safety manager with the support of company management.

With these basic objectives in mind, the following would be our program to achieve our goals.

Each jobsite is furnished with a safety package which enables the site supervisor to maintain a positive safety program regarding weekly site safety meetings, safety inspections, accident/incident prevention, proper training of personnel, practicing work habits consistent with our trade, maintaining housekeeping above an acceptable level, and monitors condition of tools and equipment.

To further support our efforts, we adhere to OSHA requirements with written policies in Hazardous Communication procedures. Our Substance Abuse Policy assures our customers that we are providing a drug free work force.

Achievement of our objectives will allow us to provide for our customers a quality product and a safe and healthful work area for our employees.

A handwritten signature in black ink, appearing to be "Casey DeRosa", written over a horizontal line.

Signature

A handwritten date "7/22/22" in black ink, written over a horizontal line.

Date

A handwritten name "Casey DeRosa" in black ink, written over a horizontal line.

Name

A handwritten title "GM" in black ink, written over a horizontal line.

Title

Nortex Concrete Lift & Stabilization, Inc.