SAFETY DATA SHEET

SECTION 1 — CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

Product Identifier TerraFill® TF50: Graphite/Bentonite/Cement Blend	
Product Use Low Resistivity Grounding Backfill	
Manufacturer's Name ALLTEC LLC	
Street Address 64 Catalyst Drive	
City Canton	**State** North Carolina
Zip Code 28716	**Emergency Telephone** 828-646-9290

SECTION 2 — HAZARDS IDENTIFICATION

2.1: Classification of substance
TerraFill® TF50 is not a hazardous substance
2.2: Label Elements
Hazard Statement: H373 may cause damage to lung through prolonged or repeated inhalation.
Precautionary Statement: P260: do not breathe dust
P285: In case of inadequate ventilation wear respiratory protection.

2.3: Other hazards
None known

SECTION 3 — COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Composition: Carbon variety Graphite. TerraFill® TF50 is not a pure substance, but is a mixture of graphite, inert mineral matter and silica.

Component	CAS No.	% Range
Graphite	7782-42-5	55
Portland Cement	65997-15-1	30
Bentonite	1302-78-9	15
May Contain: Silica	14808-60-7	0.2-0.6

Last modified: 2/22/2016

SECTION 4 — FIRST AID MEASURES

4.1.1 **Inhalation** Remove patient to particulate-free environment. Wear approved dust mask to avoid breathing dust. Seek medical attention if irritation persists.
4.1.2 Skin contact Wash with mild soap and warm water: TerraFill® TF50 is non-staining to skin and is not a chemical irritant.
4.1.3 Eye contact Rinse with tepid water until eyes are clear of particulates. Seek medical attention if irritation persists
4.1.4 **Ingestion** Get immediate medical attention. Do not induce vomiting unless directed by medical personnel. Graphite is not known to be toxic by ingestion. However, ingestion may cause digestive system blockage.
4.2 Most important symptoms and effects, both acute and delayed: No Data Available
4.3 Indication of any immediate medical attention and special treatment needed: If patient exhibits shortness of breath, choking, powder inundated eyes or mouth; immediate medical attention may be required.

SECTION 5 — FIRE FIGHTING MEASURES

Graphite is not flammable under normal conditions
5.1 Extinguishing Media Dry chemical extinguisher, water, sand, limestone powder,
5.2 Special Hazards This substance will burn but is not easily ignited. At temperatures above 1500 C, graphite reacts with substances containing oxygen, including water and carbon dioxide. In case of intensely hot fire events, use sand to cover and isolate. Products of Combustion: Carbon dioxide, CO2, carbon monoxide, CO, sulfur dioxide, SO2.
5.3 Advice for Fire Fighters: Use self-contained air pack, gloves, safety goggles
5.4 Additional Information: USA NFP Rating 010

SECTION 6 — ACCIDENTAL RELEASE MEASURES

	Wear approved dust mask, safety goggles, and conventional work gloves.
Methods for Cleaning Up:	Conventional Sweep or vacuum. Avoid creating dusting conditions
6.1 Personal precautions , protective equipment and emergency procedures	
6.1.1 For non-emergency personnel: Wear approved dust mask, safety goggles, and conventional work gloves. Use conventional cleanup techniques and avoid creating dust. Vacuum is preferred over sweeping. Wear a dust mask/respirator to reduce the change of inhaled dust. TerraFill® TF50 may be electrically conductive and any cleanup methods should avoid contacting graphite with electrical circuitry.	
6.1.2 For emergency responders: Wear approved dust mask, safety goggles, and conventional work gloves. Same methodology as for non-emergency personnel(sec 6.1.1)	
6.2 Environmental Precautions: TerraFill® TF50 is inert and insoluble and will not pose any soluble ion hazards to the environment. However, good housekeeping practices should be followed and spilled material should be cleaned up, and disposed of in an appropriate manner.	
6.3 Methods and material for containment and clean up: No special containment needed other than conventional vacuuming and waste containment. Avoid creating dust. TerraFill® TF50 may be electrically conductive and any cleanup methods should avoid contacting coke with electrical circuitry.	
6.4 Reference to other sections: Not needed 6.5 Additional information: Not needed	

SECTION 7 — HANDLING AND STORAGE

7.1 Precautions for safe handling

7.1.1 Handling Use conventional methods, but avoid dusting conditions. Keep powder from contacting eyes. Graphite may be a conductor of electricity. Avoid contact between TerraFill® TF50 and electrical circuitry.
7.2 Conditions for safe storage, including any incompatibilities.
Storage and Incompatibilities Store all carbonaceous materials in a dry location. TerraFill® TF50 is incompatible with all oxidizing agents
Dust Explosibility Hazards: Very finely divided graphite powder poses a slight risk of dust explosion hazard: Dust class ST1, MIE greater that 10 J (very low hazard of spark ignition)

SECTION 8 — EXPOSURE CONTROL / PERSONAL PROTECTION

8.1 Control parameters

8.1.1 Occupational exposure limits	
Component	ACGIH TWA
Graphite	2.0 mg/m^3
Bentonite	Recommended TLV Respirable dust = (10/ (% respirable quartz +2)) mg/m3. Total dust = (30/ (%quartz + 3)) mg/m3
Portland Cement	Recommended TLV Respirable dust = (10/(% respirable quartz +2)) mg/m3. Total dust = (30/ (%quartz + 3)) mg/m3
Crystalline Silica	0.025 mg/m^3 Respirable dust
Engineering Measures	Use adequate dust collection to maintain dust levels below the control or recommended values.
Respiratory Protection	Approved dust mask, type N95 recommended.
Eye Protection	Conventional safety glasses or goggles.
Skin Protection	Conventional work gloves and clothing.
Additional	TerraFill® TF50 is not a pure substance, but is a mixture of graphite, inert mineral matter, and silica.

8.2 Exposure controls

8.2.1 Appropriate engineering controls: Use adequate dust collection to maintain dust levels below the control or recommended values.
8.2.2 Personal protective equipment 8.2.2.1 Eye/Face Protection: Wear laboratory goggles, or full side shielded safety glasses. 8.2.2.2 Skin Protection: Conventional work gloves and clothing. 8.2.2.3 Respiratory Protection: Approved dust mask, type N95 recommended.
8.2.3 Environmental exposure controls: Graphite is inert and insoluble. To the best of our knowledge, graphite will not present any environmental hazards. No special environmental exposure controls, other than standard practices for dust and spill control, are required.

SECTION 9 — PHYSICAL AND CHEMICAL PROPERTIES

9.1 Information on basic physical and chemical properties

Color:	Gray to Black	Material State	Solid, granular or powder
Odor	None		
Boiling Point:	NA	Melting Point	Sublimates at 3652C
Specific Gravity	1.8-2.0	Vapor Density	Not applicable
Vapor Pressure (mm Hg)	NA	% Volatile (By Wt.)	0-1%
Solubility in Water	Insoluble	Evaporation Rate:	Not applicable
pH	NA	Auto Ignition	Above 500 ˚C
Decomposition Temp	Oxidizes above 450C	Dust Explosion class	ST1=KST>0-200 bar m/s, MIE above 10 J.
Flash Point	NA Solid, non-melting substance.		

SECTION 10 — STABILITY AND REACTIVITY

10.1 Reactivity	Graphite is non-reactive under ambient conditions
10.2 Stability	Stable. Will not polymerize or self-react spontaneously.
10.3 Possibility of hazardous reactions	None known
10.4 Conditions to Avoid	Avoid contact with oxidizing agents. Graphite will begin to oxidize at temperatures above 450 C.
10.5 Incompatible materials	Oxidizing agents
10.6 Hazardous products of decomposition	Carbon Dioxide (CO_2), Carbon Monoxide (CO), Sulfur dioxide (SO_2)
Flammable Limits (% by Vol.)	LEL and UEL values not available: Minimum Ignition Energy (MIE) greater than 10 joules. When exposed to extremely high energy ignition sources very finely divided graphite powder can form explosive mixtures with air. Avoid contact between graphite dust clouds and high energy ignition sources. Classified as combustible but not flammable.

SECTION 11 — TOXICOLOGICAL INFORMATION

11.1 Information on toxicological effects.

Toxicological information about graphite is not available. Graphite is inert, insoluble and is not expected to present ingestion or other acute toxicity hazard

STOT-repeated exposure: This product contains quartz (respirable) as an impurity, and as a result is classified as STOT RE2 according to EC 1272/2008.
Prolonged and/or massive exposure to respirable crystalline silica-containing dust may cause silicosis, a nodular pulmonary fibrosis caused by deposition in the lungs of fine respirable particles of crystalline silica.

In 1997, IARC (the International Agency for Research on Cancer) concluded that crystalline silica inhaled from occupational sources can cause lung cancer in humans. However it pointed out that not all industrial circumstances, nor all crystalline silica types, were to be incriminated. *(IARC Monographs on the evaluation of the carcinogenic risks of chemicals to humans, Silica, silicates dust and organic fibres, 1997, Vol. 68, IARC, Lyon, France.)*

In June 2003, SCOEL (the EU Scientific Committee on Occupational Exposure Limits) concluded that the main effect in humans of the inhalation of respirable crystalline silica dust is silicosis. "There is sufficient information to conclude that the relative risk of lung cancer is increased in persons with silicosis (and, apparently, not in employees without silicosis exposed to silica dust in quarries and in the ceramic industry). Therefore preventing the onset of silicosis will also reduce the cancer risk…" *(SCOEL SUM Doc 94-final, June 2003).*

Aspiration hazard: Solid substance. Based on available data the classification criteria are not met.
Symptoms related to the physical, chemical and toxicological characteristics:
In case of ingestion: TerraFill® TF50 is inert and insoluble, no ingestion toxicity is expected. However, irritation of the gastrointestinal tract may occur.
In case of skin contact: Mechanical irritation is possible.
In case of inhalation: Inhalation may result mechanical irritation of the respiratory tract. No symptoms are expected if relevant occupational exposure levels are adhered to. In situations of repeated excessive lung overload due to a high airborne concentration of particles of respirable size for extended periods of time pneumoconiosis may develop. See section 4 for first aid measures.
In case of eye contact: Mechanical irritation possible. No human data on effects after eye contact are available. See section 4 for first aid measure.

SECTION 12 — ECOLOGICAL INFORMATION

12.1 Toxicity:	TerraFill® TF50 is inert and insoluble. To the best of our knowledge, graphite does not present any significant environmental hazards unless present in very high concentrations. Carbon is the principal constituent of graphite, and is not expected to pose a toxic hazard to aquatic organisms.
12.1.1 Aquatic Toxicity: Data not available. TerraFill® TF50 is not water soluble and does not present a soluble-ion hazard. Fine graphite particles suspended in natural water bodies may be harmful to organisms sensitive to suspended solids.	
12.1.2 Sediment toxicity: None known.	
12.1.3 Terrestrial toxicity: None known.	
12.2 Persistence and degradability: TerraFill® TF50 is a form of carbon and will not degrade further under normal conditions. This form of carbon is stable, unreactive in water under ambient conditions, and is insoluble.	
12.3 Bioaccumulation potential: There is no evidence indicating that graphite is bio accumulative.	
12.4 Soil Mobility: TerraFill® TF50 is not expected to have mobility in soil as it is an insoluble, inorganic substance.	
12.5 PBT and vPvB assessment: TerraFill® TF50 is not a persistent bio accumulative and toxic substance.	
12.6 Other adverse effects: None known. Graphite has no ozone depleting potential.	

SECTION 13 — DISPOSAL CONSIDERATIONS

Dispose of in a manner which conforms to local, state and Federal regulations.
TerraFill® TF50 is a form of carbon graphite, inert mineral matter, and silica. Graphite is non-hazardous but disposal of waste should be handled in a responsible matter.
Graphite is a form of elemental carbon so it is not biodegradable.
Provision of a European Waste Catalog, waste code number, should be handled in agreement with the regional waste disposal company.
Packaging should be completely emptied of contents and disposed of in a manner specified by the recycler/regional disposal contractor. Dust formation from packaging residues should be avoided. Store empty packaging in a suitable receptacle.

SECTION 14 — TRANSPORT INFORMATION

14.1 UN Number	Not applicable
14.2 UN Proper shipping name	Not applicable
14.3 Transport hazard class	Not applicable
14. 4 Packing Group	Not applicable
14.5 Environmental hazards	None known
Marine Transport	Not classified as a hazardous material
Land Transport	Not classified as a hazardous material
Air Transport	Not classified as a hazardous material
Transport Label Required	No label required

SECTION 15 — REGULATORY INFORMATION

15.1 Regulatory Status and Inventories

CAS No.	USA TSCA	EU EINECS	Australia AICS	Korea ECL	China IECSC	Canada DSL
7782-42-5	Listed	231-955-3	Listed	Listed	Listed	Listed
65997-15-1	Listed	266-043-4	Listed	Listed	Listed	Listed
1302-78-9	Listed	215-108-5	Listed	Listed	Listed	Listed
14808-60-7	Listed	238-878-4	Listed	Listed	Listed	Listed

Chemical Safety Assessment
For this product a chemical safety assessment was not carried out.

SECTION 16 — OTHER INFORMATION

Abbreviations Used:

ACGIH TWA American Council of Government and Industrial Hygienists Time Weighted Average value.
CAS Chemical Abstracts Service
NA Not applicable
N.O.S. Not otherwise specified
BW Body weight