



NATURAL

MATERIAL DATA SAFETY SHEET

SECTION 1: CHEMICAL PRODUCTS AND COMPANY IDENTIFICATION

Product Name/Trade Name: Turf-N-Fill

Other Names: Silica sand, silica, quartz, silicon dioxide, crumb rubber

Use: Turf infill material for use with artificial turf landscaping.

Manufacturer: California Silica Products, LLC.

12808 Rancho Rd. Adelanto, CA 92301

Effective Date: Sept. 8, 2008

Substance Name	CAS Number	UN Number	EINECS Number	Proportion (by weight)
Crystalline Silica (Quartz)	14808-60-7	238-878-4 Not hazardous for shipping purposes	238-878-4	>90%
Ferric Oxide		1332-37-2		>2%
Feldspar		68476-25-5		>2%
Mica		12001-26-2		
Crumb Rubber				>10%

SECTION 2: HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Substance Name	CAS Number	UN Number	EINECS Number	Proportion (by weight)
Crystalline Silica (Quartz)	14808-60-7	238-878-4 Not hazardous for shipping purposes	238-878-4	>95%
Mica	12001-26-2	Not hazardous for shipping purposes	310-127-6	<2%
Napthenic/Aromatic Oil	64742-04-7			<2%
Carbon Black	133-86-4			<2%
Talc, Respirable dust	14807-9-6			<2%
Zinc Oxide, fume	1314-12-2			<2%
Zinc Oxide, total dust	1314-12-2			<2%

SECTION 3: HAZARDOUS IDENTIFICATION

Emergency Overview: Not explosive, not a fire hazard

Primary Routes of Entry and Potential Health Effects:

Inhalation

Acute effects: Dust may cause irritation of the nose, throat, and airways, resulting in coughing and sneezing. Certain susceptible individuals may experience wheezing (spasms of the bronchial airways) on inhaling dust. No health hazards are known to be caused by crumb rubber. Rubber is generally thought to be nuisance dust.

Chronic Effects: Repeated and prolonged overexposures to dust containing crystalline silica causes silicosis (scarring of the lung) and increases the risk of bronchitis, tuberculosis, lung cancer, renal disease, and scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels, and internal organs). Studies have shown cigarette smoking increases the risk of silicosis, bronchitis, and lung cancer in persons also exposed to crystalline silica.

Ingestion

Unlikely under normal conditions of use, but swallowing this product may result in irritation or damage to the mouth



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and gastrointestinal tract due to mechanical abrasion.

Eye

Dust may irritate the eyes from mechanical abrasion causing watering and redness. No health hazards are known to be caused by crumb rubber.

Skin

Dust may cause irritation of the skin from friction but cannot be absorbed through intact skin. No health hazards are known to be caused by crumb rubber.

Medical conditions generally aggravated by exposure: pulmonary function may be reduced by inhalation of respirable crystalline silica. If lung scarring occurs, such scarring could aggravate other lung conditions such as asthma, emphysema, pneumonia, or restrictive lung disease. Lung scarring from crystalline silica may also increase risks to pulmonary tuberculosis.

Smoking

Cigarette smoking increases the risk of occupational respiratory diseases.

Carcinogenicity

Proposition 65 Warning

Respirable crystalline silica is known to the State of California to cause cancer. Rubber syntactic or natural is not listed as a carcinogen.

International Agency for the Research on Cancer (IARC)

Crystalline silica inhaled in the forms of quartz or cristobalite from occupational sources is carcinogenic to humans.

The National Toxicology Program (NTP)

NTP has concluded that respirable crystalline silica is a known human carcinogen.

LD50

Silicon Dioxide: Rat oral >22,500 mg/kg Mouse oral >10,500 mg/kg

NFPA Ratings (scale 0–4): Health=2, Flammability=0, Reactivity=0, Personal Protection=E

SECTION 4: FIRST AID MEASURES

Signs and symptoms of over exposure: Breathlessness, wheezing, cough, sputum production (a release from glands in the walls of the bronchi airways and from cells lining the nose and sinuses).

First Aid:

Swallowed

If swallowed, dilute by drinking large amounts of water. Do not induce vomiting. Seek medical attention. If unconscious, loosen tight clothing and lay the person on his/her left side. Give nothing by mouth to an individual who is not alert and conscious.

Eye Contact

Remove contact lenses. Flush with running water or saline for at least 15 minutes. Seek medical attention if redness persists or if visual changes occur.



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Skin Contact

Wash with mild soap and water. Contact physician if irritation persists or later develops.

Inhaled

Remove to fresh air. If shortness of breath or wheezing develops, seek medical attention.

Advice to Doctor:

Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

Fire and Explosion Hazard:

1. Flash Point: Ignition temperature of rubber dust cloud 320°C (608°F) approximately
2. Auto-ignition: Not applicable
3. Non-flammable and non-explosive

Extinguishing Media:

Water, foam, dry powder (DO NOT USE HIGH PRESSURE WATER)

Fire Fighting:

Noxious gases may be formed under fire conditions. Fire fighting personnel should wear normal protective equipment and positive self-contained breathing apparatus.

Unusual Fire and explosion hazards:

Rubber dust may be explosive if mixed with air in critical proportions and in the presence of an ignition source. This hazard is similar to that of many organic solids.*

*Estimate is based on data for 200 mesh synthetic and hard natural rubber.

SECTION 6: ACCIDENTAL RELEASE

Precautions: Good housekeeping practices are necessary for cleaning up areas where spills or leaks have occurred. Take measures to either eliminate or minimize the creation of dust. Respirable dust and silica levels should be monitored regularly.

Whenever possible, practices likely to generate dust should be controlled with engineering controls such as local exhaust ventilation, dust suppression with water and containment, enclosure or covers.

Use respiratory protection as described in Section 8.

Clean-up Methods: A fine water spray should be used to suppress dust when sweeping (dry sweeping should not be attempted). Vacuuming, preferably with an industrial vacuum cleaner outfitted with a high efficiency particulate (HEPA) filter, is preferred to sweeping. Waste may be disposed of by landfill and compliance with federal, state, and local requirements.

In the event of an accidental release, observe all protection measures set out in this MSDS. Avoid using materials and products that are incompatible with the product (Refer to Section 10).



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SECTION 7: HANDLING AND STORAGE

Keep away from reactive products. Do not store near food, beverages or smoking materials. Avoid spilling and creating dust. Maintain appropriate dust controls during handling. Use appropriate respiratory protection during handling as described in Section 8.

Eye: Avoid contact with eyes. When handling the product, dust resistant safety goggles/glasses should be worn.

Skin: Direct contact with skin should be avoided by wearing long sleeved shirts, pants, hat and gloves. Exposure to dust on work clothes should be avoided when changing or removing clothes. Work clothes should be washed regularly. Hands should be washed carefully and thoroughly after handling.

Inhalation: When engineering and administrative controls are inadequate to reduce exposures below exposure criteria, a NIOSH or MSHA approved respirator can be used to provide respiratory protection from the respirable crystalline silica. The approved respirators are a function of the type of respirator and the level of exposure for which protection is being afforded. Respiratory protection must be used in accordance with applicable regulations (e.g. 29 CFR 1910. 134). Applicable regulations include provisions for a user training program, respirator repair and cleaning, respirator fit testing and other requirements.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

OSHA Permissible Exposure Standards (PEL); Exposures shall not exceed an 8-hour time weighted average limit as stated in 29 CFR 1910. 1000 Table Z-3 for mineral dusts, expressed in million particles per cubic feet (Mppcf) and/or milligrams per cubic meter (mg/m³). The American Conference of Governmental Industrial Hygienists Threshold Limit Values (TLV) is a recommended exposure limit based on an 8-hour time weighted average.

Substance Name	TLV mg/m ³	OSHA PEL Mppcf	OSHA PEL mg/m ³	MSHA PEL mg/m ³
Crystalline Silica (quartz) (Respirable)	0.05 mg/m ³	250 %SiO ₂ +5	10 mg/m ³ %SiO ₂ +2	10 mg/m ³ %SiO ₂ +2
Quartz (Total Dust)	–	– %SiO ₂ +2	30 mg/m ³ %SiO ₂ +2	30 mg/m ³
Mica (Respirable)	3 mg/m ³	20		
Nuisance Dust (Not otherwise specified)				
(Total Dust)	10 mg/m ³	50	15 mg/m ³	
(Respirable)	3 mg/m ³	15	5 mg/m ³	

Other Limits Recommended: The National Institute of Occupational Safety and Health also has a Recommended Exposure Limit (REL) of 0.05 mg/m³ for respirable crystalline silica, based on a 10-hour time weighted average.

Personal Protection: When handling products that may generate silica dust:

1. Work outdoors where feasible, otherwise use mechanical ventilation.
2. Wear a dust mask or if dust may exceed PEL, use NIOSH or MSHA approved respirator.
3. Warn others in area.

Use and maintain respirators that conform to ANSI Standard (Z88.2) particulate respirators. Select respirators based on the level of exposure to crystalline silica as measured by dust sampling. Use respirators that offer protection to the highest concentrations of



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crystalline silica if the actual concentrations are unknown. Put in place a respiratory protection and monitoring program that complies with MSHA or OSHA (e.g. 29 CFR 1910.134) standards, which include provisions for a user training program, respirator repair and cleaning, respirator fit testing, and other requirements. Comply with all other federal state laws.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Order: Granular, white or tan; odorless.

Vapor Pressure: Not relevant

Specific Gravity: 2.55–2.75

Flammability: Not relevant

Boiling Point: 4045 °F (2930 °C)

Melting Point: 3050 °F (1677 °C)

Flash Point: (Rubber dust cloud) 320°C (608°F) approximately

Autoignition Temp: No relevant

Volatility: Not relevant

Solubility in Water: Insoluble

Evaporation Rate: Not applicable

NFPA Ratings (Scale 0–4): Health=2, Flammability=0, Reactivity=0, Personal protection=E

SECTION 10: STABILITY AND REACTIVITY

Stability: Crystalline silica is stable under ordinary conditions.

Conditions to Avoid: Excessive dust generation during storage and handling. Conditions that will cause ignition or burning. Do not store in hoppers due to the possibility of spontaneous combustion.

Materials to Avoid:

Incompatibility: Hydrofluoric acid will dissolve silica and can generate silicon tetrafluoride, a corrosive gas. Contact with strong oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, or oxygen difluoride may cause fires and/or explosions.

Thermal Decomposition or By products: Thermal decomposition may product carbon monoxide, carbon dioxide, fume dust, sulfur dioxide, zinc oxide, liquid and gaseous hydrocarbons.

Hazardous Polymerization: Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Effects:

Swallowed

Unlikely under normal conditions of use, but swallowing this product may result in irritation or damage to the mouth and gastrointestinal tract due to mechanical abrasion.

Eye Contact

Dust may irritate the eyes from mechanical abrasion causing watering and redness.

Skin Contact

Dust may cause irritation of the skin from friction but cannot be absorbed through intact skin.



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Inhaled

Dust may cause irritation of the nose, throat, and airways, resulting in coughing and sneezing. Certain susceptible individuals may experience wheezing (spasms of the bronchial airways) on inhaling dust.

Chronic Effects:

Inhaled

Repeated and prolonged overexposures to dust containing crystalline silica causes silicosis (scarring of the lung) and increases the risk of bronchitis, tuberculosis, lung cancer, renal disease, and scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels, and internal organs). Studies have shown cigarette smoking increases the risk of silicosis, bronchitis, and lung cancer in persons also exposed to crystalline silica.

Acute silicosis, a sub-chronic disease associated with acute, massive silica exposures, is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include, but are not limited to: shortness of breath, cough, fever, weight loss, and chest pain. Such exposure may cause pneumoconiosis and pulmonary fibrosis.

SECTION 12: ECOLOGICAL INFORMATION

There is a limited amount of ecological data available on this product, primarily because it is a naturally occurring mineral. An adequate representation of this data is beyond the scope of this document.

SECTION 13: DISPOSAL CONSIDERATIONS

Dispose of material as inert, non-metallic mineral in conformance with local, state, and federal regulations. Crystalline silica is not a RCRA hazardous waste. Crumb rubber is not defined as hazardous waste.

SECTION 14: TRANSPORT INFORMATION

UN No.:	None allocated
Dangerous Goods Class:	None allocated
Hazchem Code:	None allocated
Poisons Schedule:	None allocated
Packing Group:	Not applicable
Label:	Not a DOT hazardous material. Local regulations may apply.

SECTION 15: REGULATORY INFORMATION

DOT Hazard Classification: None

Placard Requirement: Not a DOT hazardous material. Local regulations may apply.

California Proposition 65 Warning: Airborne particles of respirable size of crystalline silica are known to the State of California to cause cancer.

CERCLA Hazardous Substance (40 CFR Part 302):

Listed Substance: No

Unlisted Substance: No

Reportable Quantity (RQ): None

Characteristic(s): Not applicable

RCRA Waste Number: Not Applicable



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SARA, Title III, Sections 302/303 (40 CFR Part 355-Emergency Planning Notification):

Extremely Hazardous Substance: No

SARA, Title III, Sections 311/312 (40 CFR Part 3570-Hazardous Chemical Reporting: Community Right-To-Know):

Acute: Yes

Chronic: Yes

Fire: No

Pressure: No

Reactivity: No

SARA, Title III, Sections 313 (40 CFR Part 372-Toxic Chemical Release Reporting: Community Right-To-Know):

Not a RCRA Hazardous Waste

TSCA Inventory List: Yes

TSCA 8(d): No

WARNING

WARNING – AVOID BREATHING SILICA DUST

Product contains silica. Inhalation of respirable silica dust can cause silicosis, a potentially disabling lung disease, and is known to the State of California to cause lung cancer. When handling products that may generate silica dust:

1. Work outdoors where feasible, otherwise use mechanical ventilation.
2. Wear a dust mask or if dust may exceed PEL, use NIOSH-approved respirator.
3. Warn others in area.

This form has been prepared to meet current Federal OSHA hazard communication regulations, and is offered without any warranty or guarantee of any type. CALIFORNIA SILICA PRODUCTS, LLC. cannot control the use of its products, and therefore specifically disclaims liability and responsibility arising from the use, misuse, and alteration of its products.

The information contained in this MSDS was produced without independent scientific or medical studies analyzing the effects of silica upon human health. The information contained herein is based upon scientific and other data that CALIFORNIA SILICA PRODUCTS, LLC. believes is valid and reliable as previously referenced in this MSDS. The information contained herein relates only to specific materials listed in the document, and does not address the effects of silica when used in combination with other materials or substances, or when used in other processes. Because conditions of use are beyond CALIFORNIA SILICA PRODUCTS, LLC.'s control, the company makes no representations, guarantees or warranties, either express or implied warranties as to the fitness of the product for use, and assumes no liability related to the information contained above.

CALIFORNIA SILICA PRODUCTS, LLC. requires, as a condition of use of its products, that purchasers comply with all applicable Federal, State and local health and safety laws, regulations, orders, requirements, and strictly adhere to all instructions and warnings, which accompany the product.



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SECTION 1: CHEMICAL PRODUCTS AND COMPANY IDENTIFICATION

Product Name/Trade Name: Turf-N-Fill

Other Names: Silica sand, silica, quartz, silicon dioxide, crumb rubber, Chrome oxide green

Use: Turf infill material for use with artificial turf landscaping.

Manufacturer: California Silica Products, LLC.

12808 Rancho Rd. Adelanto, CA 92301

Effective Date: Sept. 8, 2008

Substance Name	CAS Number	UN Number	EINECS Number	Proportion (by weight)
Crystalline Silica (Quartz)	14808-60-7	238-878-4 Not hazardous for shipping purposes	238-878-4	>90%
Ferric Oxide		1332-37-2		>2%
Feldspar		68476-25-5		>2%
Mica		12001-26-2		
Crumb Rubber				>10%
Chrome Oxide Green	1308-38-9		215-160-9	>10%

SECTION 2: HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Substance Name	CAS Number	UN Number	EINECS Number	Proportion (by weight)
Crystalline Silica (Quartz)	14808-60-7	238-878-4 Not hazardous for shipping purposes	238-878-4	>95%
Mica	12001-26-2	Not hazardous for shipping purposes	310-127-6	<2%
Napthenic/Aromatic Oil	64742-04-7			<2%
Carbon Black	133-86-4			<2%
Talc, Respirable dust	14807-9-6			<2%
Zinc Oxide, fume	1314-12-2			<2%
Zinc Oxide, total dust	1314-12-2			<2%
Crumb Rubber				>10%
Chrome Oxide Green	1308-38-9		215-160-9	>10%

SECTION 3: HAZARDOUS IDENTIFICATION

Emergency Overview: Not explosive, not a fire hazard

Primary Routes of Entry and Potential Health Effects:

Inhalation

Acute effects: Dust may cause irritation of the nose, throat, and airways, resulting in coughing and sneezing.

Certain susceptible individuals may experience wheezing (spasms of the bronchial airways) on inhaling dust.

No health hazards are known to be caused by crumb rubber. Rubber is generally thought to be nuisance dust.

Chronic Effects: Repeated and prolonged overexposures to dust containing crystalline silica causes silicosis

(scarring of the lung) and increases the risk of bronchitis, tuberculosis, lung cancer, renal disease, and scleroderma

(a disease affecting the connective tissue of the skin, joints, blood vessels, and internal organs). Studies have shown

cigarette smoking increases the risk of silicosis, bronchitis, and lung cancer in persons also exposed to crystalline silica.



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Ingestion

Unlikely under normal conditions of use, but swallowing this product may result in irritation or damage to the mouth and gastrointestinal tract due to mechanical abrasion.

Eye

Dust may irritate the eyes from mechanical abrasion causing watering and redness. No health hazards are known to be caused by crumb rubber.

Skin

Dust may cause irritation of the skin from friction but cannot be absorbed through intact skin. No health hazards are known to be caused by crumb rubber.

This product was tested and found to contain less than 5 PPM heavy metals including lead. Lead is regulated under California safe drinking water and toxic enforcement act (Proposition 65). We consider this to be a typical quantity, some bags may exceed 5 PPM.

Medical conditions generally aggravated by exposure: pulmonary function may be reduced by inhalation of respirable crystalline silica. If lung scarring occurs, such scarring could aggravate other lung conditions such as asthma, emphysema, pneumonia, or restrictive lung disease. Lung scarring from crystalline silica may also increase risks to pulmonary tuberculosis.

Smoking

Cigarette smoking increases the risk of occupational respiratory diseases.

Carcinogenicity

Proposition 65 Warning

Respirable crystalline silica is known to the State of California to cause cancer. Rubber syntactic or natural is not listed as a carcinogen.

International Agency for the Research on Cancer (IARC)

Crystalline silica inhaled in the forms of quartz or cristobalite from occupational sources is carcinogenic to humans.

The National Toxicology Program (NTP)

NTP has concluded that respirable crystalline silica is a known human carcinogen.

LD50

Silicon Dioxide: Rat oral >22,500 mg/kg Mouse oral >10,500 mg/kg

NFPA Ratings (scale 0–4): Health=2, Flammability=0, Reactivity=0, Personal Protection=E

SECTION 4: FIRST AID MEASURES

Signs and symptoms of over exposure: Breathlessness, wheezing, cough, sputum production (a release from glands in the walls of the bronchi airways and from cells lining the nose and sinuses).

First Aid:

Swallowed

If swallowed, dilute by drinking large amounts of water. Do not induce vomiting. Seek medical attention. If unconscious, loosen tight clothing and lay the person on his/her left side. Give nothing by mouth to an individual who is not alert and conscious.



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Eye Contact

Remove contact lenses. Flush with running water or saline for at least 15 minutes. Seek medical attention if redness persists or if visual changes occur.

Skin Contact

Wash with mild soap and water. Contact physician if irritation persists or later develops.

Inhaled

Remove to fresh air. If shortness of breath or wheezing develops, seek medical attention.

Advice to Doctor:

Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

Fire and Explosion Hazard:

1. Flash Point: Ignition temperature of rubber dust cloud 320°C (608°F) approximately
2. Auto-ignition: Not applicable
3. Non-flammable and non-explosive

Extinguishing Media:

Water, foam, dry powder (DO NOT USE HIGH PRESSURE WATER)

Fire Fighting:

Toxic fumes may be formed under fire conditions. Fire fighting personnel should wear normal protective equipment and positive self-contained breathing apparatus.

Unusual Fire and explosion hazards:

Rubber dust may be explosive if mixed with air in critical proportions and in the presence of an ignition source. This hazard is similar to that of many organic solids.*

*Estimate is based on data for 200 mesh synthetic and hard natural rubber.

SECTION 6: ACCIDENTAL RELEASE

Precautions: Good housekeeping practices are necessary for cleaning up areas where spills or leaks have occurred. Take measures to either eliminate or minimize the creation of dust. Respirable dust and silica levels should be monitored regularly.

Whenever possible, practices likely to generate dust should be controlled with engineering controls such as local exhaust ventilation, dust suppression with water and containment, enclosure or covers. Ventilate area and wash spill site after material pickup is complete.

Use respiratory protection as described in Section 8.

Clean-up Methods: A fine water spray should be used to suppress dust when sweeping (dry sweeping should not be attempted). Vacuuming, preferably with an industrial vacuum cleaner outfitted with a high efficiency particulate (HEPA) filter, is preferred to sweeping. Waste may be disposed of by landfill and compliance with federal, state, and local requirements.



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In the event of an accidental release, observe all protection measures set out in this MSDS. Avoid using materials and products that are incompatible with the product (Refer to Section 10).

SECTION 7: HANDLING AND STORAGE

Keep away from reactive products. Do not store near food, beverages or smoking materials. Avoid spilling and creating dust. Maintain appropriate dust controls during handling. Use appropriate respiratory protection during handling as described in Section 8.

Eye: Avoid contact with eyes. When handling the product, dust resistant safety goggles/glasses should be worn.

Skin: Direct contact with skin should be avoided by wearing long sleeved shirts, pants, hat and gloves. Exposure to dust on work clothes should be avoided when changing or removing clothes. Work clothes should be washed regularly. Hands should be washed carefully and thoroughly after handling.

Inhalation: When engineering and administrative controls are inadequate to reduce exposures below exposure criteria, a NIOSH or MSHA approved respirator can be used to provide respiratory protection from the respirable crystalline silica. The approved respirators are a function of the type of respirator and the level of exposure for which protection is being afforded. Respiratory protection must be used in accordance with applicable regulations (e.g. 29 CFR 1910. 134). Applicable regulations include provisions for a user training program, respirator repair and cleaning, respirator fit testing and other requirements.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

OSHA Permissible Exposure Standards (PEL); Exposures shall not exceed an 8-hour time weighted average limit as stated in 29 CFR 1910. 1000 Table Z-3 for mineral dusts, expressed in million particles per cubic feet (Mppcf) and/or milligrams per cubic meter (mg/m³). The American Conference of Governmental Industrial Hygienists Threshold Limit Values (TLV) is a recommended exposure limit based on an 8-hour time weighted average.

Substance Name	TLV mg/m ³	OSHA PEL Mppcf	OSHA PEL mg/m ³	MSHA PEL mg/m ³
Crystalline Silica (quartz) (Respirable)	0.05 mg/m ³	250 %SiO ₂ +5	10 mg/m ³ %SiO ₂ +2	10 mg/m ³ %SiO ₂ +2
Quartz (Total Dust)	—	— %SiO ₂ +2	30 mg/m ³ %SiO ₂ +2	30 mg/m ³
Mica (Respirable)	3 mg/m ³	20		
Nuisance Dust (Not otherwise specified) (Total Dust)	10 mg/m ³	50	15 mg/m ³	
(Respirable)	3 mg/m ³	15	5 mg/m ³	

Other Limits Recommended: The National Institute of Occupational Safety and Health also has a Recommended Exposure Limit (REL) of 0.05 mg/m³ for respirable crystalline silica, based on a 10-hour time weighted average.

Personal Protection: When handling products that may generate silica dust:

1. Work outdoors where feasible, otherwise use mechanical ventilation.
2. Wear a dust mask or if dust may exceed PEL, use NIOSH or MSHA approved respirator.



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3. Warn others in area.

Use and maintain respirators that conform to ANSI Standard (Z88.2) particulate respirators. Select respirators based on the level of exposure to crystalline silica as measured by dust sampling. Use respirators that offer protection to the highest concentrations of crystalline silica if the actual concentrations are unknown. Put in place a respiratory protection and monitoring program that complies with MSHA or OSHA (e.g. 29 CFR 1910.134) standards, which include provisions for a user training program, respirator repair and cleaning, respirator fit testing, and other requirements. Comply with all other federal state laws.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Order: Granular, white or tan; odorless.

Vapor Pressure: Not relevant

Specific Gravity: 2.55–2.75

Flammability: Not relevant

Boiling Point: 4045 °F (2930 °C)

Melting Point: 3050 °F (1677 °C)

Odor: Vulcanized rubber smell

Flash Point: (Rubber dust cloud) 320°C (608°F) approximately

Autoignition Temp: No relevant

Volatility: Not relevant

Solubility in Water: Insoluble

Evaporation Rate: Not applicable

Appearance: Green coated silica crystals and dark green rubber crumbs

NFPA Ratings (Scale 0–4): Health=2, Flammability=0, Reactivity=0, Personal protection=E

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable under ordinary conditions.

Conditions to Avoid: Excessive dust generation during storage and handling. Conditions that will cause ignition or burning. Do not store in hoppers due to the possibility of spontaneous combustion.

Materials to Avoid:

Incompatibility: Hydrofluoric acid will dissolve silica and can generate silicon tetrafluoride, a corrosive gas. Contact with strong oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, or oxygen difluoride may cause fires and/or explosions.

Thermal Decomposition or By products: Thermal decomposition may product carbon monoxide, carbon dioxide, fume dust, sulfur dioxide, zinc oxide, liquid and gaseous hydrocarbons.

Hazardous Polymerization: Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Effects:

Swallowed

Unlikely under normal conditions of use, but swallowing this product may result in irritation or damage to the mouth and gastrointestinal tract due to mechanical abrasion.

Eye Contact

Dust may irritate the eyes from mechanical abrasion causing watering and redness.



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Skin Contact

Dust may cause irritation of the skin from friction but cannot be absorbed through intact skin.

Inhaled

Dust may cause irritation of the nose, throat, and airways, resulting in coughing and sneezing. Certain susceptible individuals may experience wheezing (spasms of the bronchial airways) on inhaling dust.

Chronic Effects:

Inhaled

Repeated and prolonged overexposures to dust containing crystalline silica causes silicosis (scarring of the lung) and increases the risk of bronchitis, tuberculosis, lung cancer, renal disease, and scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels, and internal organs). Studies have shown cigarette smoking increases the risk of silicosis, bronchitis, and lung cancer in persons also exposed to crystalline silica.

Acute silicosis, a sub-chronic disease associated with acute, massive silica exposures, is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include, but are not limited to: shortness of breath, cough, fever, weight loss, and chest pain. Such exposure may cause pneumoconiosis and pulmonary fibrosis.

SECTION 12: ECOLOGICAL INFORMATION

Acquatic toxicity: L₅₀ greater than 1000 mg/ 1 golden orfe (*leuciscus idus*) due to chrome oxide. 1 toxicological test performed on chemically identical products. There is a limited amount of ecological data available on this product, primarily because the majority of this product is a naturally occurring mineral. An adequate representation of this data is beyond the scope of this document.

SECTION 13: DISPOSAL CONSIDERATIONS

Due to the presence of chrome oxide, bury in a landfill site approved for the disposal of chemical and hazardous wastes. Observe all national, state, and local environmental regulations.

SECTION 14: TRANSPORT INFORMATION

UN No.:	None allocated
Dangerous Goods Class:	None allocated
Hazchem Code:	None allocated
Poisons Schedule:	None allocated
Packing Group:	Not applicable
Label:	Not a DOT hazardous material. Local regulations may apply.

SECTION 15: REGULATORY INFORMATION

DOT Hazard Classification: None

Placard Requirement: Not a DOT hazardous material. Local regulations may apply.

California Proposition 65 Warning: Airborne particles of respirable size of crystalline silica are known to the State of California to cause cancer.



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CERCLA Hazardous Substance (40 CFR Part 302):

Listed Substance: No
Unlisted Substance: No
Reportable Quantity (RQ): None
Characteristic(s): Not applicable
RCRA Waste Number: Not Applicable

SARA, Title III, Sections 302/303 (40 CFR Part 355-Emergency Planning Notification):

Extremely Hazardous Substance: No

SARA, Title III, Sections 311/312 (40 CFR Part 3570-Hazardous Chemical Reporting: Community Right-To-Know):

Acute: Yes
Chronic: Yes
Fire: No
Pressure: No
Reactivity: No

SARA, Title III, Sections 313 (40 CFR Part 372-Toxic Chemical Release Reporting: Community Right-To-Know):

Not a RCRA Hazardous Waste

TSCA Section 5(e) – Consent Order/SNUR:

This product is not subject to a Section 5(e) Consent Order or Significant New Use Rule (SNUR).

TSCA Section 8(b) – Inventory Status:

All chemical(s) comprising this product are either exempt or listed on the TSCA.

TSCA 8(d): No

TSCA Section 12(b) – Export Notification

This product does not contain any chemical(s) that are subject to a Section 12(b) export notification.

WARNING

WARNING – AVOID BREATHING SILICA DUST

Product contains silica. Inhalation of respirable silica dust can cause silicosis, a potentially disabling lung disease, and is known to the State of California to cause lung cancer. When handling products that may generate silica dust:

1. Work outdoors where feasible, otherwise use mechanical ventilation.
2. Wear a dust mask or if dust may exceed PEL, use NIOSH-approved respirator.
3. Warn others in area.



GREEN

MATERIAL DATA SAFETY SHEET

This form has been prepared to meet current Federal OSHA hazard communication regulations, and is offered without any warranty or guarantee of any type. CALIFORNIA SILICA PRODUCTS, LLC. cannot control the use of its products, and therefore specifically disclaims liability and responsibility arising from the use, misuse, and alteration of its products.

The information contained in this MSDS was produced without independent scientific or medical studies analyzing the effects of silica upon human health. The information contained herein is based upon scientific and other data that CALIFORNIA SILICA PRODUCTS, LLC. believes is valid and reliable as previously referenced in this MSDS. The information contained herein relates only to specific materials listed in the document, and does not address the effects of silica when used in combination with other materials or substances, or when used in other processes. Because conditions of use are beyond CALIFORNIA SILICA PRODUCTS, LLC.'s control, the company makes no representations, guarantees or warranties, either express or implied warranties as to the fitness of the product for use, and assumes no liability related to the information contained above.

CALIFORNIA SILICA PRODUCTS, LLC. requires, as a condition of use of its products, that purchasers comply with all applicable Federal, State and local health and safety laws, regulations, orders, requirements, and strictly adhere to all instructions and warnings, which accompany the product.



GREEN SAND

MATERIAL DATA SAFETY SHEET

SECTION 1: CHEMICAL PRODUCTS AND COMPANY IDENTIFICATION

Product Name/Trade Name: Turf-N-Fill

Other Names: Silica sand, silica, quartz, silicon dioxide, Chrome oxide green

Use: Turf infill material for use with artificial turf landscaping.

Manufacturer: California Silica Products, LLC.

12808 Rancho Rd. Adelanto, CA 92301

Effective Date: Sept. 8, 2008

Substance Name	CAS Number	UN Number	EINECS Number	Proportion (by weight)
Crystalline Silica (Quartz)	14808-60-7	238-878-4 Not hazardous for shipping purposes	238-878-4	>90%
Ferric Oxide		1332-37-2		>2%
Feldspar		68476-25-5		>2%
Mica		12001-26-2		
Chrome Oxide Green	1308-38-9		215-160-9	>10%

SECTION 2: HAZARDOUS INGREDIENTS/IDENTITY INFORMATION

Substance Name	CAS Number	UN Number	EINECS Number	Proportion (by weight)
Crystalline Silica (Quartz)	14808-60-7	238-878-4 Not hazardous for shipping purposes	238-878-4	>95%
Mica	12001-26-2	Not hazardous for shipping purposes	310-127-6	<2%
Napthenic/Aromatic Oil	64742-04-7			<2%
Carbon Black	133-86-4			<2%
Talc,Respirable dust	14807-9-6			<2%
Zinc Oxide, fume	1314-12-2			<2%
Zinc Oxide, total dust	1314-12-2			<2%
Chrome Oxide Green	1308-38-9		215-160-9	>10%

SECTION 3: HAZARDOUS IDENTIFICATION

Emergency Overview: Not explosive, not a fire hazard

Primary Routes of Entry and Potential Health Effects:

Inhalation

Acute effects: Dust may cause irritation of the nose, throat, and airways, resulting in coughing and sneezing. Certain susceptible individuals may experience wheezing (spasms of the bronchial airways) on inhaling dust. No health hazards are known to be caused by crumb rubber. Rubber is generally thought to be nuisance dust.

Chronic Effects: Repeated and prolonged overexposures to dust containing crystalline silica causes silicosis (scarring of the lung) and increases the risk of bronchitis, tuberculosis, lung cancer, renal disease, and scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels, and internal organs). Studies have shown cigarette smoking increases the risk of silicosis, bronchitis, and lung cancer in persons also exposed to crystalline silica.



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Ingestion

Unlikely under normal conditions of use, but swallowing this product may result in irritation or damage to the mouth and gastrointestinal tract due to mechanical abrasion.

Eye

Dust may irritate the eyes from mechanical abrasion causing watering and redness.

Skin

Dust may cause irritation of the skin from friction but cannot be absorbed through intact skin.

This product was tested and found to contain less than 5 PPM heavy metals including lead. Lead is regulated under California safe drinking water and toxic enforcement act (Proposition 65). We consider this to be a typical quantity, some bags may exceed 5 PPM.

Medical conditions generally aggravated by exposure: pulmonary function may be reduced by inhalation of respirable crystalline silica. If lung scarring occurs, such scarring could aggravate other lung conditions such as asthma, emphysema, pneumonia, or restrictive lung disease. Lung scarring from crystalline silica may also increase risks to pulmonary tuberculosis.

Smoking

Cigarette smoking increases the risk of occupational respiratory diseases.

Carcinogenicity

Proposition 65 Warning

Respirable crystalline silica is known to the State of California to cause cancer. Rubber syntactic or natural is not listed as a carcinogen.

International Agency for the Research on Cancer (IARC)

Crystalline silica inhaled in the forms of quartz or cristobalite from occupational sources is carcinogenic to humans.

The National Toxicology Program (NTP)

NTP has concluded that respirable crystalline silica is a known human carcinogen.

LD50

Silicon Dioxide: Rat oral >22,500 mg/kg Mouse oral >10,500 mg/kg

NFPA Ratings (scale 0–4): Health=2, Flammability=0, Reactivity=0, Personal Protection=E

SECTION 4: FIRST AID MEASURES

Signs and symptoms of over exposure: Breathlessness, wheezing, cough, sputum production (a release from glands in the walls of the bronchi airways and from cells lining the nose and sinuses).

First Aid:

Swallowed

If swallowed, dilute by drinking large amounts of water. Do not induce vomiting. Seek medical attention. If unconscious, loosen tight clothing and lay the person on his/her left side. Give nothing by mouth to an individual who is not alert and conscious.



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Eye Contact

Remove contact lenses. Flush with running water or saline for at least 15 minutes. Seek medical attention if redness persists or if visual changes occur.

Skin Contact

Wash with mild soap and water. Contact physician if irritation persists or later develops.

Inhaled

Remove to fresh air. If shortness of breath or wheezing develops, seek medical attention.

Advice to Doctor:

Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

- Fire and Explosion Hazard:**
1. Flash Point: Not applicable
 2. Auto-ignition: Not applicable
 3. Non-flammable and non-explosive

Extinguishing Media:

Water, foam, dry powder

Fire Fighting:

Toxic fumes may be formed under fire conditions. Fire fighting personnel should wear normal protective equipment and positive self-contained breathing apparatus.

SECTION 6: ACCIDENTAL RELEASE

Precautions: Good housekeeping practices are necessary for cleaning up areas where spills or leaks have occurred. Take measures to either eliminate or minimize the creation of dust. Respirable dust and silica levels should be monitored regularly.

Whenever possible, practices likely to generate dust should be controlled with engineering controls such as local exhaust ventilation, dust suppression with water and containment, enclosure or covers. Ventilate area and wash spill site after material pickup is complete.

Use respiratory protection as described in Section 8.

Clean-up Methods: A fine water spray should be used to suppress dust when sweeping (dry sweeping should not be attempted). Vacuuming, preferably with an industrial vacuum cleaner outfitted with a high efficiency particulate (HEPA) filter, is preferred to sweeping. Waste may be disposed of by landfill and compliance with federal, state, and local requirements.

In the event of an accidental release, observe all protection measures set out in this MSDS. Avoid using materials and products that are incompatible with the product (Refer to Section 10).

SECTION 7: HANDLING AND STORAGE

Keep away from reactive products. Do not store near food, beverages or smoking materials. Avoid spilling and creating dust. Maintain appropriate dust controls during handling. Use appropriate respiratory protection during handling as described in Section 8.



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Eye: Avoid contact with eyes. When handling the product, dust resistant safety goggles/glasses should be worn.

Skin: Direct contact with skin should be avoided by wearing long sleeved shirts, pants, hat and gloves. Exposure to dust on work clothes should be avoided when changing or removing clothes. Work clothes should be washed regularly. Hands should be washed carefully and thoroughly after handling.

Inhalation: When engineering and administrative controls are inadequate to reduce exposures below exposure criteria, a NIOSH or MSHA approved respirator can be used to provide respiratory protection from the respirable crystalline silica. The approved respirators are a function of the type of respirator and the level of exposure for which protection is being afforded. Respiratory protection must be used in accordance with applicable regulations (e.g. 29 CFR 1910.134). Applicable regulations include provisions for a user training program, respirator repair and cleaning, respirator fit testing and other requirements.

SECTION 8: EXPOSURE CONTROLS AND PERSONAL PROTECTION

OSHA Permissible Exposure Standards (PEL); Exposures shall not exceed an 8-hour time weighted average limit as stated in 29 CFR 1910.1000 Table Z-3 for mineral dusts, expressed in million particles per cubic feet (Mppcf) and/or milligrams per cubic meter (mg/m^3). The American Conference of Governmental Industrial Hygienists Threshold Limit Values (TLV) is a recommended exposure limit based on an 8-hour time weighted average.

Substance Name	TLV mg/m^3	OSHA PEL Mppcf	OSHA PEL mg/m^3	MSHA PEL mg/m^3
Crystalline Silica (quartz) (Respirable)	0.05 mg/m^3	250 % SiO_2+5	10 mg/m^3 % SiO_2+2	10 mg/m^3 % SiO_2+2
Quartz (Total Dust)	—	— % SiO_2+2	30 mg/m^3 % SiO_2+2	30 mg/m^3
Mica (Respirable)	3 mg/m^3	20		
Nuisance Dust (Not otherwise specified) (Total Dust)	10 mg/m^3	50	15 mg/m^3	
(Respirable)	3 mg/m^3	15	5 mg/m^3	

Other Limits Recommended: The National Institute of Occupational Safety and Health also has a Recommended Exposure Limit (REL) of 0.05 mg/m^3 for respirable crystalline silica, based on a 10-hour time weighted average.

Personal Protection: When handling products that may generate silica dust:

1. Work outdoors where feasible, otherwise use mechanical ventilation.
2. Wear a dust mask or if dust may exceed PEL, use NIOSH or MSHA approved respirator.
3. Warn others in area.

Use and maintain respirators that conform to ANSI Standard (Z88.2) particulate respirators. Select respirators based on the level of exposure to crystalline silica as measured by dust sampling. Use respirators that offer protection to the highest concentrations of crystalline silica if the actual concentrations are unknown. Put in place a respiratory protection and monitoring program that complies with MSHA or OSHA (e.g. 29 CFR 1910.134) standards, which include provisions for a user training program, respirator repair and cleaning, respirator fit testing, and other requirements. Comply with all other federal state laws.



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SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Appearance and Order: Granular, white or tan; odorless.

Vapor Pressure: Not relevant

Specific Gravity: 2.55–2.75

Flammability: Not relevant

Boiling Point: 4045 °F (2930 °C)

Melting Point: 3050 °F (1677 °C)

Odor: None

Flash Point: (Rubber dust cloud) 320°C (608°F) approximately

Autoignition Temp: No relevant

Volatility: Not relevant

Solubility in Water: Insoluble

Evaporation Rate: Not applicable

Appearance: Green coated silica crystal

NFPA Ratings (Scale 0–4): Health=2, Flammability=0, Reactivity=0, Personal protection=E

SECTION 10: STABILITY AND REACTIVITY

Stability: Stable under ordinary conditions.

Conditions to Avoid: Excessive dust generation during storage and handling. Conditions that will cause ignition or burning.

Materials to Avoid:

Incompatibility: Hydrofluoric acid will dissolve silica and can generate silicon tetrafluoride, a corrosive gas. Contact with strong oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, or oxygen difluoride may cause fires and/or explosions.

Thermal Decomposition or By products: Thermal decomposition may product carbon monoxide, carbon dioxide, fume dust, sulfur dioxide, zinc oxide, liquid and gaseous hydrocarbons.

Hazardous Polymerization: Will not occur.

SECTION 11: TOXICOLOGICAL INFORMATION

Acute Effects:

Swallowed

Unlikely under normal conditions of use, but swallowing this product may result in irritation or damage to the mouth and gastrointestinal tract due to mechanical abrasion.

Eye Contact

Dust may irritate the eyes from mechanical abrasion causing watering and redness.

Skin Contact

Dust may cause irritation of the skin from friction but cannot be absorbed through intact skin.

Inhaled

Dust may cause irritation of the nose, throat, and airways, resulting in coughing and sneezing. Certain susceptible individuals may experience wheezing (spasms of the bronchial airways) on inhaling dust.



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Chronic Effects:

Inhaled

Repeated and prolonged overexposures to dust containing crystalline silica causes silicosis (scarring of the lung) and increases the risk of bronchitis, tuberculosis, lung cancer, renal disease, and scleroderma (a disease affecting the connective tissue of the skin, joints, blood vessels, and internal organs). Studies have shown cigarette smoking increases the risk of silicosis, bronchitis, and lung cancer in persons also exposed to crystalline silica.

Acute silicosis, a sub-chronic disease associated with acute, massive silica exposures, is a rapidly progressive, incurable lung disease that is typically fatal. Symptoms include, but are not limited to: shortness of breath, cough, fever, weight loss, and chest pain. Such exposure may cause pneumoconiosis and pulmonary fibrosis.

SECTION 12: ECOLOGICAL INFORMATION

Aquatic toxicity: L₅₀ greater than 1000 mg/ 1 golden orfe (*leuciscus idus*) due to chrome oxide. 1 toxicological test performed on chemically identical products. There is a limited amount of ecological data available on this product, primarily because the majority of this product is a naturally occurring mineral. An adequate representation of this data is beyond the scope of this document.

SECTION 13: DISPOSAL CONSIDERATIONS

Due to the presence of chrome oxide, bury in a landfill site approved for the disposal of chemical and hazardous wastes. Observe all national, state, and local environmental regulations.

SECTION 14: TRANSPORT INFORMATION

UN No.:	None allocated
Dangerous Goods Class:	None allocated
Hazchem Code:	None allocated
Poisons Schedule:	None allocated
Packing Group:	Not applicable
Label:	Not a DOT hazardous material. Local regulations may apply.

SECTION 15: REGULATORY INFORMATION

DOT Hazard Classification: None

Placard Requirement: Not a DOT hazardous material. Local regulations may apply.

California Proposition 65 Warning: Airborne particles of respirable size of crystalline silica are known to the State of California to cause cancer.

CERCLA Hazardous Substance (40 CFR Part 302):

Listed Substance: No
Unlisted Substance: No
Reportable Quantity (RQ): None
Characteristic(s): Not applicable
RCRA Waste Number: Not Applicable



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SARA, Title III, Sections 302/303 (40 CFR Part 355-Emergency Planning Notification):

Extremely Hazardous Substance: No

SARA, Title III, Sections 311/312 (40 CFR Part 3570-Hazardous Chemical Reporting: Community Right-To-Know):

Acute: Yes

Chronic: Yes

Fire: No

Pressure: No

Reactivity: No

SARA, Title III, Sections 313 (40 CFR Part 372-Toxic Chemical Release Reporting: Community Right-To-Know):

Not a RCRA Hazardous Waste

TSCA Section 5(e) – Consent Order/SNUR:

This product is not subject to a Section 5(e) Consent Order or Significant New Use Rule (SNUR).

TSCA Section 8(b) – Inventory Status:

All chemical(s) comprising this product are either exempt or listed on the TSCA.

TSCA 8(d): No

TSCA Section 12(b) – Export Notification

This product does not contain any chemical(s) that are subject to a Section 12(b) export notification.

WARNING

WARNING – AVOID BREATHING SILICA DUST

Product contains silica. Inhalation of respirable silica dust can cause silicosis, a potentially disabling lung disease, and is known to the State of California to cause lung cancer. When handling products that may generate silica dust:

1. Work outdoors where feasible, otherwise use mechanical ventilation.
2. Wear a dust mask or if dust may exceed PEL, use NIOSH-approved respirator.
3. Warn others in area.



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