PROTECTIVE FLOORINGS & LININGS
A DIVISION OF MILAMAR COATINGS, L.L.C.

Material Safety Data Sheet

Revision Date: 08/12 Print Date: 08/21/12
Version 3.0 MSDS Identification: 3300FS - Part C Aggregate

1. PRODUCT AND COMPANY IDENTIFICATION

Product Name : 3300FS - Part C

Product Use Description : Aggregate

Company : Protective Floorings and Linings
A Division of Milamar Coatings, LLC
311 N.W. 122nd St, Suite 100
Oklahoma City, OK 73114

Telephone : 405-755-8448

Emergency Telephone Number: ChemTel 800-255-3924 or 813-248-0585 (International)

2. COMPOSITION / INFORMATION ON INGREDIENTS

ACGIH-TLV: 0.1 mg/m3 OSHA-PEL: 10mg/m3 % Si02+2 (Exposure limits are for respirable fraction.)

NIOSH recommends a Permissible Exposure Limit (PEL) of 0.05 mg/m3 respirable free silica. ACGIH-TLV and OSHA PEL are not interchangeable limit values.

The exposure limits are time-weighted average concentrations for an eight-hour workday and a 40-hour work week.

Crystalline silica exists in several forms, the most common of which is quartz. If crystalline silica (quartz) is heated to more than 870 degrees C, it can change to a form of crystalline silica known as trydimite, and if crystalline silica (quartz) is headed to more than 1470 degrees C, it can change to a form of crystalline silica known as cristobalite. The OSHA PEL for crystalline silica as trydimite and cristobalite is one-half of the OSHA PEL for crystalline silica (quartz).

Hazardous Ingredients [1]	% Wt.	Symbol	CAS No.	EC No.	R-phrases
Silica (Quartz)	65-75	Xn	14808-60-7	238-878-4	48/20-68/20
Magnesium Oxide	1-5	-	1309-48-4	215-171-9	-
Aluminum Oxide	5-15	-	1344-28-1	215-691-6	-
Iron Oxide	5-15	-	1309-37-1	215-168-2	-
Calcium Oxide	1-5	Xi	1305-78-8	215-138-9	41
Carbon Black	0-<1	-	1333-86-4	215-609-9	-

See section 15 for labelling risk phrases and section 16 for others.

3. HAZARDS INFORMATION

Emergency Overview

Not Flammable, Combustible Or Explosive.
Does Not Cause Burns
Does Not Cause Skin Irritation.
Does Not Cause Eye Irritation.
A Single Exposure Will Not Resut In Serious Adverse Health Effects.
Crystalline Silica (quartz) Is Not Known To Be An Environmental Hazard.
Crystalline Silica (quartz) Is Incompatible With Hydrofluoric Acid, Fluorine, Chlorine Trifluoride Or Oxygen Difluoride.

Potential Health Effects

Silicosis	:	Respirable crystalline silica (quartz) can cause silicosis, a fibrosis (scarring) of the lungs. Silicosis may be progressive; it may lead to disability and death.
Cancer	:	Crystalline silica (quartz) inhaled from occupational sources is classified as carcinogenic to humans.
Autoimmune Diseases	:	There are some studies that show excess numbers of cases of scleroderma and other connective tissue disorders in workers exposed to respirable crystalline silica.
Tuberculosis	:	Silicosis increases the risk of tuberculosis.
Nephrotoxicity	:	There are some studies that show an increased incidence of chronic kidney disease and end stage renal disease in workers exposed to respirable crystalline silica.
Eye Contact	:	Crystalline silica (quartz) may cause abrasion of the cornea.
Skin Contact	:	Not applicable.
Ingestion	:	Not applicable.
Chronic Effects	:	The adverse health effects - silicosis, cancer, autoimmune diseases, tuberculosis, and nephrotoxicity - are chronic effects.
Signs and Symptoms of Exposure	:	Generally, there are no signs or symptoms of exposure to crystalline silica (quartz).

Medical Conditions Generally Aggravated By Exposure :

The condition of individuals with lung disease (e.g., bronchitis, emphysema, chronic obstructive pulmonary disease) can be aggravated by exposure. See Section 11, Toxicological Information, for additional detail on potential adverse health effects.

4. FIRST AID MEASURES

Symptoms Of Overexposure

Inhaled	:	Shortness of breath, coughing, reduced pulmonary function. PROLONGED INHALATION OF RESPIRABLE SILICA WILL RESULT IN PERMANENT LUNG DAMAGE, SILICOSIS. No specific first aid is necessary since the adverse health effects associated with exposure to crystalline silica (quartz) result from chronic exposures. If there is a gross inhalation of crystalline silica (quartz), remove the person immediately to fresh air, give artificial respiration as needed, seek medical attention as needed.
Swallowed	:	May cause gastrointestinal discomfort. Give one or two glasses of water. If discomfort persists, see a physician.
First Aid	:	Emergency procedures.
Eye Contact	:	Wash with water for at least fifteen (15) minutes. If irritation or redness persists see a physician.

Skin Contact	:	Wash with soap and water. If irritation persists see a physician.
Ingestion	:	Not applicable.
Suspected Cancer Agent	:	Yes
Federal OSHA	:	No
NTP	:	Yes
IARC	:	Yes
NTP	:	Respirable crystalline silica has been listed in the Sixth Annual Report on Carcinogens.
IARC	:	Monographs on the Evaluation of the Carcinogenic Risk of Chemical to Humans (vol. 68, 1997) concludes that there is sufficient evidence in humans for the carcinogenicity of inhaled crystalline silica in the forms of quartz and cristobalite (Group 1) in certain industrial circumstances, but that carcinogenicity may be dependent on inherent characteristic of the crystalline silica or on external factors affecting is biological activity or disruption of its polymorphs.

5. FIRE-FIGHTING MEASURES

Crystalline silica (quartz) is not flammable, combustible or explosive.

6. ACCIDENTAL RELEASE MEASURES

Spill Response Procedures (including employee protection measures :
Clean up using approved, dustless methods (water or vacuum) to minimize generation of respirable silica particles.

Waste Disposal : Dispose of in a facility approved for silica (also see Section 13).

7. HANDLING AND STORAGE

Ventilation And Engineering Controls	:	Local mechanical to reduce respirable silica to below safe levels.
Respiratory Protection (Type)	:	Use NIOSH approved equipment. Positive pressure supplied air-type recommended Appropriate respiratory protection for respirable particulates is based on consideration of air borne workplace concentrations and duration of exposure arising from the intended end use. Please refer to the most recent standards of ANSI (Z88.2), OSHA (29CFR 1910.134), MSHA (30 CFR Parts 56 & 57), and NIOSH RDL. If you are unsure as to the type of respirator to be used please consult your employer.
Eye Protection (Type)	:	Safety Glasses.
Gloves (Specify Material)	:	Not normally required.
Work Practices, Hygienic Practices	:	Clean up spills promptly. Do not engage in activities that will generate respirable silica

particles.

Other Handling And Storage Requirements : Avoid generating dust. There are no special storage requirements. Train all exposed persons in all sections of this MSDS and the proper handling of silica before they work with this product.

See OSHA Hazard Communication Rule CFR 1910.1200, 1915.99, 1917.28 and 1928.21, state, local worker, or community "Right to Know" laws and regulations. We recommend that smoking be prohibited in all areas where respirators must be used. Warn your employees (and your customer users in case of resale) by posting and other means of the hazard and OSHA precautions to be used. Provide training about the OSHA precautions. See control measures in Section 8.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Local Exhaust : Use sufficient local exhaust to reduce the level of respirable crystalline silica to below the PEL. See ACHIH "Industrial Ventilation, A Manual of Recommended Practice" (latest edition).

Respiratory Protection : The following chart specifies the types of respirators, which may provide respiratory protection for crystalline silica:

Particulate Concentration	Minimum Respiratory Protection
10 x PEL or Less	Any particulate respirator, except single-use or quarter-mask respirator. Any fume respirator or high efficiency particulate filter respirator. Any supplied-air respirator. Any self-contained breathing apparatus.
50 x PEL or Less	A high efficiency particulate filter respirator with a full-face piece. Any supplied-air respirator with a full-face piece, helmet, or hood. Any self-contained breathing apparatus with a full face piece.
500 x PEL or Less	A Type C supplied-air respirator operated in pressure-demand or other positive pressure or continuous-flow mode.
Greater than 500 x PEL or Entry and Escape from Unknown Concentrations.	Self-contained breathing apparatus with a full-face piece operated in pressure-demand mode. A combination respirator which includes a Type C supplied-air respirator with a full face piece operated in pressure-demand or other positive pressure continuous-flow mode and auxiliary self-contained breathing apparatus operated in pressure-demand or other positive pressure mode

Use only NIOSH-approved or MSHA-approved equipment. See 29 CFR 1910.134 and 42 CFR 84. See also ANSI standard Z88.2 latest revision) "American National Standard for Respiratory Protection."

Exposure Guidelines : Crystalline Silica (Quartz)

CAS Number	:	14808-60-7
Percentage (by weight)	:	99.0-99,9
OSHA (TWA)	:	10 % SiO2 + 2
OSHA (STEL)	:	None
ACHIH (TWA)	:	0.05
ACGIH (STEL)	:	None
NIOSH (TWA)	:	0.05
NIOSH (STEL)	:	None
Unit	:	mg / m3

9. PHYSICAL AND CHEMICAL PROPERTIES

Vapor Density	:	Not applicable.
Specific Gravity	:	2.65.
Solubility In Water	:	Insoluble.
Vapor Pressure	:	10 mm @ 1730 degrees C.
Melting Point	:	1710 degrees C.
Evaporation Rate:	:	None.
Boiling Point	:	2230 degrees C.

10. STABILITY AND REACTIVITY

Stability	:	Stable.
Hazardous Polymerization	:	Will not occur.
Incompatibility (materials to avoid)	:	ClF3, MnF3, OF2.
Hazardous Decomposition Products	:	None.

11. TOXICOLOGICAL INFORMATION :

Silicosis	:	The major concern is silicosis, caused by the inhalation and retention of respirable crystalline silica dust. Silicosis can exist in several forms, chronic (or ordinary), accelerated or acute.
Chronic Or Ordinary Silicosis	:	Is the most common form of silicosis, and can occur after many years of exposure to relatively low levels of airborne respirable crystalline silica dust. It is further defined as either simple or complicated silicosis. Lung lesions (shown as radiographic opacities) less than 1 centimeter in diameter characterize simple silicosis, primarily in the upper lung zones. Often simple silicosis is not associated with symptoms, detectable changes in lung function or disability. Simple silicosis may be progressive and may develop into complicated silicosis or progressive massive fibrosis (PMF). Complicated silicosis or PMF is characterized by lung lesions (shown as radiographic opacities) greater than 1 centimeter in diameter. Although there may be no symptoms associated with complicated silicosis or PMF, the symptoms, if present, are shortness of breath, wheezing, cough and sputum production. Complicated silicosis or PMF my be associated with decreased lung function and may be disabling. Advanced complicated silicosis or PMF may lead to death. Advanced complicated silicosis or PMF can result in heart disease secondary to the lung disease (cor pumonale).
Accelerated Silicosis	:	Can occur with the exposure to high concentrations of respirable crystalline silica over a relatively short period; the lung lesions can appear within five (5) years of initial exposure. The progression can be rapid. Accelerated silicosis is similar to chronic

or ordinary silicosis, except that the lung lesions appear earlier and the progression is more rapid.

Acute Silicosis : Can occur with exposures to very high concentrations of respirable crystalline silica over a very short period of time, sometimes as short as a few months. The symptoms of acute silicosis include progressive shortness of breath, fever, cough and weight loss. Acute silicosis is fatal.

Cancer

IARC : The International Agency for Research on Cancer (IARC) concluded that there was "sufficient evidence in humans for the carcinogenicity of crystalline silica in the forms of quartz or cristobalite carcinogenicity from occupational sources", and that there is sufficient evidence in experimental animals for the carcinogenicity of quartz and cristobalite." The overall IARC evaluation was that "crystalline silica inhaled in the form of quartz or cristobalite from occupational sources is carcinogenic to humans (Group 1)." The IARC evaluation noted that "carcinogenicity was not detected in all industrial circumstances studies. Carcinogenicity may be dependant on inherent characteristics of the crystalline silica or on external factors affecting its biological activity or distribution of its polymorphs." For further information on the IARC evaluation, see IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 68, "Silica, Some Silicates…" (1997).

NTP : The National Toxicology Program, in its Ninth Annual Report on Carcinogens, classified "silica, crystalline (respirable)" as a known human carcinogen.

OSHA : Crystalline silica (quartz) is not regulated by the U.S. Occupational Safety and Health Administration as a carcinogen.

There have been many articles published on the carcinogenicity of crystalline silica, which the reader should consult for additional information. The following are examples of recently published articles:

"Crystalline Silica and Lung Cancer: The Problem of Conflicting Evidence", Indoor Built Environ, Volume 8, pp. 121-126 (1998);
"Crystalline Silica and the Risk of Lung Cancer on the Potteries", Occup,. Environ. Med., Volume 55, pp. 779-785 (1998);
"Is Silicosis Required for Silica-Associated Lung Cancer?" American Journal of Industrial Medicine, Volume 37, pp. 252-259 (2000);
"Silica, Silicosis, and Lung Cancer: A Risk Assessment", American Journal of Industrial Medicine, Volume 38, pp. 8-18 (2000);
"Silica, Silicosis, and Lung Cancer: A Response to a Recent Working Group Report", Journal of Occupational and Environmental Medicine, Volume 42, pp. 704-720 (2000).

Autoimmune Diseases: There is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis is associated with the increased incidence of several autoimmune disorders, -- scleroderma, systemic lupus erythermatosus, rheumatoid arthritis and diseases affecting the kidneys. For a review of the subject, the following may be consulted.
"Occupational Exposure to Crystalline Silica and Autoimmune Disease", Environmental Health Perspectives, Volume 107, Supplement 5, pp. 793-802 (1999);
"Occupational Scleroderma", Current Opinion In Rheumatology, Volume 11, pp. 490-494 (1999).

Tuberculosis: Individuals with silicosis are at increased risk to develop pulmonary tuberculosis, if exposed to persons with tuberculosis. The following may be consulted for further information:
Occupational Lung Disorders, Third Edition, Chapter 12, entitled "Silicosis and Related Diseases", Parkes, W. Raymond (1994);
"Risk of pulmonary tuberculosis relative to silicosis and exposure to silica dust in South African gold miners," Occup. Environ, Med., Volume 55, pp. 496-502 (1998).

Kidney Disease: There is evidence that exposure to respirable crystalline silica (without silicosis) or that the disease silicosis is associated with the increased incidence of kidney diseases, including end stage renal disease. For additional information on the subject, the following may be consulted:
"Kidney Disease and Silicosis", Nephron, Volume 85, pp. 14-19 (2000).

12. ECOLOGICAL INFORMATION

Crystalline silica (quartz) is not known to be ecotoxic; I.e., there is do data which suggests that crystalline silica (quartz) is toxic to birds, fish, invertebrates, microorganisms or plants. For additional information on crystalline silica (quartz), see Sections 9 (physical and chemical properties) and 10 (stability and reactivity) of this MSDS.

13. DISPOSAL CONSIDERATIONS

General	:	The packaging and material may be land filled; however, material should be covered to minimize generation of airborne dust.
RCRA	:	Crystalline silica (quartz) is not classified as a hazardous waste under the Resource Conservation and Recovery Act, or its regulations, 40 CFR 261 et seq.

The above applies to material as sold by PF&L, Inc. The material may be contaminated during use, and it is the responsibility of the user to assess the appropriate disposal of the used material.

14. TRANSPORT INFORMATION

Crystalline silica (quartz) is not a hazardous material for purposes of transportation under the U.S. Department of Transportation Table of Hazardous Materials, 49 CFR 172.101.

15. REGULATORY INFORMATION

TSCA No.	:	Crystalline silica (quartz) appears on the EPA TSCA inventory under the CAS Number 14808-60-7.
RCRA	:	Crystalline silica (quartz) is not classified as a hazardous waste under the Resource Conservation and Recovery Act, or its regulations, 40 CFR 261 et seq.
CERCLA	:	Crystalline silica (quartz) is not classified as a hazardous substance under the regulations of the Comprehensive Environmental Response Compensation and Liability Act (CERCLA), 40 CFR 302.

Emergency Planning and Community Right To Know Act :
Crystalline silica (quartz) is not and extremely hazardous substance under Section 302 and is not a toxic chemical subject to the requirements of Section 313.

Clean Air Act	:	Crystalline silica (quartz) processed by PF&L, Inc. was not processed or does not contain any Class I or Class II ozone depleting substances.
FDA	:	Silica is included in the list of substances that may be included in coatings used in food

		contact surfaces, 21 CFR 175.300(b)(3)(xxvi).
NTP	:	Respirable crystalline silica (quartz) is classified as a carcinogen.
OSHA Carcinogen	:	Crystalline silica (quartz) is not listed.
California Proposition 65	:	Crystalline silica (quartz) is classified as a substance know to the State of California to be a carcinogen.
Canadian Classification [1]	:	D2A: Very toxic materials causing other effects; D2B: Toxic Mterials causing other effects
Risk Phrase(s)	:	Harmful: danger of serious damge to health by prolonged exposure through inhalation Harmful: possible risk of irreversible effects trough inhalation
Precuationary and First Aid	:	Do not breath dust, In case of insufficient ventilation, wear suitable respiratory equipment. If affected by inhalation of dust, move to fresh air. Contact physician immediately.
Other	:	EINECS No.: 238-878-4 EEC Label (Risk/Safety Phases): R 48/20, R 40/20, S22, S38 IARC: Crystalline silica (quartz) is classified in IARC Group 1. National, state, provincial or local emergency planning, community right-to-know oı other laws, regulations or ordinances my be applicable--consult applicable national, state, provincial or local lows.

16. OTHER INFORMATION

H.M.I.S. Rating	:	Health Hazard Rating 1* Flammability Hazard Rating 0 Reactivity Hazard Rating 0 Personal Protective Equip. E**

*Chronic exposure to respirable size silica will result in silicosis. **Comply with special OSHA respiratory protection if sandblasting.

DOT	:	not regulated
SARA Title III	:	not listed
Prepared By	:	Protective Floorings and Linings. EH&S Product Safety Department

[1] Classified according to:

*29 CFR 1910,1200,1915,1916,1917

*Mass, right-to-know law(ch. 40,M.G.L..O 111F)

*Canadian WHMIS regulations

*67/548/EEC(29th Adaption) and 99/45EC

*Worksafe Austialia (NOHSC: 1008(1999))