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MATERIAL SAFETY DATA SHEET

Effective Date: 11-07
 Replaces: 2-04

I – PRODUCT AND COMPANY IDENTIFICATION		
CHEMICAL NAME Not Applicable	CHEMICAL FORMULA Mixture	MOLECULAR WEIGHT Not Applicable
TRADE NAME Cold Mix/Pre-Coat		
SYNONYMS Cold Mix/Pre-Coat		DOT IDENTIFICATION NO. None

II – COMPOSITION/INFORMATION ON INGREDIENTS				
COMPONENT(S) CHEMICAL NAME	CAS REGISTRY NO	% by weight (approx)	MSHA/OSHA PEL	ACGIH TLV-TWA
Limestone	1317-65-3	80- 99	(R) 10 mg/m ³ / (% SiO ₂ +2) §	(R) #5 mg/m ³
Silicon Dioxide *, SiO ₂	14808-60-7	0-10	(R) 10 mg/m ³ / (% SiO ₂ +2) §	(R) 0.025 mg/m ³
Aluminum Oxide, Al ₂ O ₃	1344-28-1	<1	(T) 15 mg/m ³ , (R) 5 mg/m ³	#10 mg/m ³
Ferric Oxide, Fe ₂ O ₃	1309-37-1	<1	10 mg/m ³	5 mg/m ³
Magnesium Oxide, MgO	1309-48-4	0-8	15 mg/m ³	10 mg/m ³
Calcium Oxide, CaO	1305-78-8	0-43	5 mg/m ³	2 mg/m ³
Sodium Oxide, Na ₂ O	1313-59-3	<1	-	2 mg/m ³ as NaOH
Potassium Oxide, K ₂ O	12136-45-7	<1	-	-
Calcium Carbonate, CaCO ₃	471-34-1	40-100	(T) 15 mg/m ³ , (R) 5 mg/m ³	#10 mg/m ³
Asphalt Bitumen	8052-42-4	<1-20	-	0.5 mg/m ³ as benzene soluble aerosol
Flux Oil	Mixture	0.1-3	-	-

*: The composition of SiO₂ may be up to 100% crystalline silica. (R): Respirable (T): Total §: Crystalline silica is normally measured as respirable dust. The OSHA standard also presents a formula for calculation of the PEL based on total dust: 30 mg/m³ / (% SiO₂ +2). #: Particulate matter containing no asbestos and <1% crystalline silica.

III – HAZARDS IDENTIFICATION
Angular dark gray to black particles ranging in size from powder to small stones. Mild petroleum odor. Silica containing respirable dust particles may be generated by handling cold mix/pre-coat. Inhalation of excessive particulate matter may cause respiratory problems. Crystalline silica, a component of this product, has been designated as a Group I carcinogen by IARC. Light catalytic cracked distillate, a component of Flux oil has been designated as a probable human carcinogen (2A) by IARC based on sufficient evidence in experimental animals.

Health Effects: The information below represents an overview of health effects caused by overexposure to one or more components in cold mix/pre-coat. The individual effects are described in Section XI.

Primary route(s) of exposure: Inhalation Skin Ingestion

EYE CONTACT: Direct contact with dust may cause irritation by mechanical abrasion. Conjunctivitis may occur. Exposure to asphalt fumes when the limestone rock asphalt is heated may cause irritation, redness or pain.

SKIN CONTACT: Direct contact may cause irritation by mechanical abrasion or corrosiveness of product. Contact with heated material can cause serious burns.

SKIN ABSORPTION: Not expected to be a significant exposure route.

INGESTION: Small amounts (a tablespoonful) swallowed during normal handling operations are not likely to cause injury. Ingestion of large amounts may cause gastrointestinal irritation and blockage.

INHALATION: Dusts may irritate the nose, throat, and respiratory tract by mechanical abrasion or corrosive action. Coughing, sneezing, chest pain, shortness of breath, inflammation of mucous membrane, and flu-like fever may occur following exposures in excess of appropriate exposure limits. Repeated excessive exposure may cause pneumoconiosis, such as silicosis and other respiratory effects.

Notes on Silicosis:

Use of cold mix/pre-coat for construction purposes is not believed to cause additional acute toxic effects. Repeated overexposures to respirable crystalline silica (quartz, cristobalite, tridymite) for periods as short as 6 months has caused acute silicosis.

Chronic exposure to respirable quartz-containing dust in excess of appropriate exposure limits has caused silicosis, a progressive pneumoconiosis (lung disease). Restrictive and/or obstructive lung function changes may result from chronic exposure. Chronic tobacco smoking may further increase the risk of developing chronic lung problems.

Symptoms of acute silicosis include (but are not limited to): shortness of breath, cough, fever, weight loss, and chest pain. Acute silicosis is a rapidly progressive, incurable lung disease and is typically fatal.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Inhaling respirable dust and/or crystalline silica may aggravate existing respiratory system disease(s) and/or dysfunctions. Exposure to dust may aggravate existing skin and/or eye conditions. Smoking and obstructive/restrictive lung diseases may also exacerbate the effects of excessive exposure to this product.

IV – FIRST AID MEASURES

EYES: Immediately flush eye(s) with plenty of clean water for at least 15 minutes, while holding the eyelid(s) open. Occasionally lift the eyelid(s) to ensure thorough rinsing. Beyond flushing, do not attempt to remove material from the eye(s). Contact a physician if irritation persists or develops later.

SKIN: Wash with soap and water. Contact a physician if irritation persists or develops later.

INGESTION: If person is conscious, give a large quantity of water and induce vomiting; however, never attempt to make an unconscious person drink or vomit. Get medical attention.

INHALATION: Remove to fresh air. Dust in throat and nasal passages should clear spontaneously. Contact a physician if irritation persists or develops later.

V – FIRE FIGHTING MEASURES

FLASHPOINT
Varied - mixture

FLAMMABLE LIMITS IN AIR
Varied - mixture

EXTINGUISHING AGENT

Dry chemical, carbon dioxide, regular foam or water fog. Water may be ineffective in fighting such fires but may be used to keep the fire-exposed containers cool.

UNUSUAL FIRE AND EXPLOSION HAZARD

Contact with powerful oxidizing agents may cause fire and/or explosions (see Section X of this MSDS). When product is heated or comes in contact with sparks or flames, the vapors formed may result in explosive mixtures with air. Vapors may travel to source of ignition and flash back. Fires may produce irritating, corrosive and/or toxic gases. The health effects of these products are further discussed in Section XI.

VI – ACCIDENTAL RELEASE MEASURES**STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED**

Persons involved in cleaning should first follow the precautions defined in Section VII of the MSDS. Spilled materials, where dust can be generated, may overexpose cleanup personnel to respirable quartz-containing dust. Wetting of spilled material and/or use of respiratory protective equipment may be necessary. Do not dry sweep spilled material.

This product is not subject to the reporting requirements of Title III of SARA, 1986, and 40 CFR 372.

VII – HANDLING AND STORAGE

This product is not intended or designed for, and should not be used as an abrasive blasting medium or for foundry applications. Follow protective controls set forth in Section VIII of this MSDS when handling this product.

Respirable quartz-containing dust may be generated during processing, handling and storage. Do not breathe dust.

Avoid contact with skin and eyes.

Do not store near food or beverages or smoking materials.

Do not stand on piles of materials; it may be unstable.

Do not store near flammable materials and hot surfaces.

VIII – EXPOSURE CONTROLS/PERSONAL PROTECTION**ENGINEERING CONTROLS**

Ventilation: Use local exhaust, general ventilation or natural ventilation adequate to maintain exposures below appropriate exposure and flammability limits. If a person breathes large amounts of this material, move the exposed person to fresh air at once; other measures are usually unnecessary.

Other control measures: Respirable dust and quartz levels should be monitored regularly. Dust and quartz levels in excess of appropriate exposure limits should be reduced by all feasible engineering controls, including (but not limited to) dust suppression (wetting), ventilation, process enclosure, and enclosed employee work stations.

EYE/FACE PROTECTION

Safety glasses with side shields should be worn as minimum protection. Dust goggles should be worn when excessively (visible) dusty conditions are present or are anticipated. If product contacts the eyes, immediately wash the eyes with large amounts of water, occasionally lifting the lower and upper lids. Get medical attention immediately. Contact lenses should not be worn when working with this material.

SKIN PROTECTION

When handling heated material, avoid direct contact with skin by using heat insulated gloves and protective clothing.

RESPIRATORY PROTECTION

Respirator Recommendations:

For respirable quartz levels that exceed or are likely to exceed appropriate exposure limits, a NIOSH-approved 100 series particulate filter respirator must be worn. If respirable quartz levels exceed or are likely to exceed an 8 hour-TWA of 0.5 mg/m³, a

NIOSH-approved air purifying, full-face respirator with a 100 series particulate filter must be worn. If asphalt fumes exceeding appropriate exposure limits are expected to be present, use any self-contained breathing apparatus that has a full face-piece and is operated in a pressure-demand or positive pressure mode or any supplied-air respirator that has a full face-piece and is operated in a pressure-demand or positive pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus. Respirator use must comply with applicable MSHA or OSHA standards, which include provisions for a user training program, respirator repair and cleaning, respirator fit testing, and other requirements. For additional information contact NIOSH at 1-800-356-4674.

Emergency or planned entry into unknown concentrations or IDLH conditions: Any self-contained breathing apparatus that has a full-face piece and is operated in a pressure-demand or other positive-pressure mode or any supplied-air respirator that has a full-face piece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus.

Escape from unknown or IDLH conditions: Any air-purifying, full-face piece respirator with a high-efficiency particulate filter or any appropriate escape-type, self-contained breathing apparatus. If presence of asphalt fumes are expected, use with a combination of mounted organic vapor canister having a high-efficiency particulate filter.

GENERAL HYGIENE CONSIDERATIONS

There are no known hazards associated with this material when used as recommended. Following the guidelines in this MSDS are recognized as good industrial hygiene practices. Avoid breathing dust. Avoid skin and eye contact. Wash dust-exposed skin with soap and water before eating, drinking, smoking, and using toilet facilities. Wash work clothes after each use.

IX – PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE AND ODOR Dark gray to black particles ranging in size from powder to small stones. Mild petroleum odor.	SPECIFIC GRAVITY. 2.188
BOILING POINT Not applicable	VAPOR DENSITY IN AIR (AIR = 1) Not Applicable
VAPOR PRESSURE Not applicable	% VOLATILE, BY VOLUME 0%
EVAPORATION RATE 0	SOLUBILITY IN WATER Negligible

X – STABILITY AND REACTIVITY

STABILITY Stable	CONDITIONS TO AVOID Contact with incompatible materials (see below).
INCOMPATIBILITY (Materials to avoid) Contact with powerful oxidizing agents such as fluorine, boron trifluoride, chlorine trifluoride, manganese trifluoride, and oxygen difluoride may cause fire and/or explosions. Silica dissolves in hydrofluoric acid producing a corrosive gas- silicon tetra fluoride.	
HAZARDOUS DECOMPOSITION PRODUCTS Silica containing respirable dust particles may be generated by handling cold mix/pre-coat. Thermal decomposition of the material may release carbon monoxide, carbon dioxide, hydrogen sulfide, nitrogen dioxide, ozone and other organic and inorganic compounds into the atmosphere. Some thermal decomposition may occur during paving operations using cold mix/pre-coat. The health effects of the decomposition products are discussed in Section XI.	

XI – TOXICOLOGICAL INFORMATION

This product is a mixture of components. The composition percentages are listed in Section II. Toxicological information for each component is listed below:

Silicon Dioxide: It is comprised of amorphous and crystalline forms of silica. In some batches, crystalline silica may represent up to 100% of silicon dioxide.

Respirable crystalline silica (quartz):

ACGIH TLV= 0.025 mg/m³

MSHA and OSHA PEL:

Crystalline quartz (respirable): PEL-TWA 10 mg/m³/ (%SiO₂ + 2).

Crystobalite: Use ½ the value calculated from the count or mass formulae for quartz.

Tridymite: Use ½ the value calculated from the formulae for quartz.

Other Particulates: TLV = 10 mg/m³ (inhalable/total particulate, not otherwise classified), TLV = 3 mg/m³ (respirable particulate, not otherwise classified), OSHA PEL = 15 mg/m³ (total particulate, not otherwise regulated), OSHA PEL = 5 mg/m³ (respirable particulate, not otherwise regulated)

ACGIH, MSHA, and OSHA have determined that adverse effects are not likely to occur in the workplace provided exposure levels do not exceed the appropriate exposure limits. Lower exposure limits may be appropriate for some individuals including persons with pre-existing medical conditions such as those described below.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE

Inhaling respirable dust and/or crystalline silica may aggravate existing respiratory system disease(s) and/or dysfunctions.

Exposure to dust may aggravate existing skin and/or eye conditions.

Occupational exposure to free silica is known to produce silicosis, a chronic, disabling lung disease characterized by the formation of silica-containing nodules of scar tissue in the lungs. Simple silicosis, in which the nodules are less than 1 cm in diameter is generally asymptomatic but can be slowly progressive, even in the absence of continued exposure.

Silicosis leads to conditions such as lung fibrosis and reduced pulmonary function. The form and severity in which silicosis manifests itself depends in part on the type and extent of exposure to silica dusts: chronic, accelerated and acute forms are all recognized. In later stages the critical condition may become disabling and potentially fatal. Restrictive and/or obstructive changes in lung function may occur due to exposure. A risk associated with silicosis is development of pulmonary tuberculosis (silico-tuberculosis). Respiratory insufficiencies due to massive fibrosis and reduced pulmonary function, possibly with accompanying heart failure, are other potential causes of death due to silicosis.

Symptoms of Silicosis: Not all individuals with silicosis will exhibit symptoms (signs) of the disease. However, silicosis is progressive, and symptoms can appear at any time, even years after exposures have ceased. Symptoms of silicosis may include (but are not limited to): Shortness of breath; difficulty breathing with or without exertion; coughing; diminished work capacity; diminished chest expansion; reduction of lung volume; right heart enlargement and/or failure. Persons with silicosis have an increased risk of pulmonary tuberculosis infection.

Respirable dust containing newly broken particles has been shown to be more hazardous to animals in laboratory tests than respirable dust containing older silica particles of similar size. Respirable silica particles which had aged for sixty days or more showed less lung injury in animals than equal exposures of respirable dust containing newly broken pieces of silica.

There are reports in the literature suggesting that excessive crystalline silica exposure may be associated with adverse health effects involving the kidney, scleroderma (thickening of the skin caused by swelling and thickening of fibrous tissue) and other autoimmune disorders. However, this evidence has been obtained primarily from case reports involving individuals working in high exposure situations or those who have already developed silicosis; and therefore, this evidence does not conclusively prove a casual relationship between silica or silicosis and these adverse health effects. Several studies of persons with silicosis also indicate increased risk of developing lung cancer, a risk that increases with the duration of exposure. Many of these studies of silicosis do not account for lung cancer confounders, especially smoking. In October 1996, an IARC Working group re-assessing crystalline silica, a component of this product, designated crystalline silica as carcinogenic (Group 1). The NTP indicates that crystalline silica is reasonably anticipated to be a carcinogen (Group 2). These classifications are based on sufficient evidence of carcinogenicity in certain experimental animals and on selected epidemiological studies of workers exposed to crystalline silica. Crystalline silica in October 1996 was listed on the Safe Drinking Water and Toxic Enforcement ACT of 1986 (California

Proposition 65) as a chemical known to the state to cause cancer or reproductive toxicity.

Aluminum Oxide:

Exposure route: Eyes, skin, inhalation.

Target organs: Eyes, skin, respiratory system.

Acute effect: Animal studies with α -alumina were reported in 1941. This study found that alumina particles well below 40 μm in diameter produced a "nuisance particulate" reaction in animals. Very fine Al_2O_3 powder was not fibrogenic in rats, guinea pigs, or hamsters when inhaled for 6 to 12 months and sacrificed at periods up to 12 months following the last exposure.

Chronic effect/carcinogenicity: Aluminum oxide is not classifiable as a human carcinogen. Epidemiologic surveys have indicated an excess of nonmalignant respiratory disease in workers exposed to aluminum oxide during abrasives production.

Ferric Oxide:

Exposure route: Inhalation.

Target organs: Respiratory system.

Acute effect: Benign pneumoconiosis with X-ray shadows indistinguishable from fibrotic pneumoconiosis. Experimental work in animals exposed by intratracheal injection or by inhalation to iron oxide mixed with less than 5% silica has shown no evidence of fibrosis produced in lung tissue.

Chronic effect/carcinogenicity: It is not generally accepted that inhalation or dermal exposure to iron oxide dust or fume poses a carcinogenic risk to human beings. Not classifiable as to human carcinogen potential.

Magnesium Oxide:

Exposure route: Inhalation, eye/skin contact.

Target organs: Eyes, respiratory system.

Acute effect: Magnesium oxide dust caused slight irritation of the eyes and nose, conjunctivitis, inflammation of the mucous membrane, and coughing up discolored sputum after industrial exposures amongst workers exposed to an unspecified concentration of MgO. Acute toxicity causes nausea, malaise, general depression and paralysis of respiratory, cardiovascular and central nervous system.

Experiments with cats exposed to freshly formed MgO (magnesium ranging from 21 to 156 mg) fumes plus 10% carbon dioxide showed uniform but slight hypothermia. These animals rapidly returned to normal and showed no subsequent ill effect upon cessation of MgO inhalation.

Chronic effect/carcinogenicity: NIOSH indicated that there may be a carcinogenic risk from exposure to MgO dust.

Calcium Oxide:

Exposure route: Inhalation, ingestion, skin/eye contact.

Target organs: Eyes, skin, respiratory system.

Acute effect: Direct contact of CaO with tissues, can result in burns and severe irritation because of its high reactivity and alkalinity. Major complaints of workers exposed to lime consist of irritation of the skin and eyes, although inflammation of the respiratory passages, ulceration and perforation of the nasal septum, and even pneumonia has been attributed to inhalation of the dust.

Chronic effect/carcinogenicity: Not classifiable as human carcinogen.

Sodium Oxide:

Exposure route: Inhalation, ingestion, skin/eye contact.

Target organs: Eyes, skin, respiratory system.

Acute effect: Corrosive – causes burns, irritation of skin, eyes, respiratory tract, extremely destructive of mucous membranes.

Chronic effect/carcinogenicity: Not classifiable as human carcinogen.

Potassium Oxide:

Exposure route: Inhalation, ingestion, skin/eye contact.

Target organs: Eyes, skin, respiratory system.

Acute effect: If inhaled, causes sore throat, cough, burning sensation and shortness of breath. Contact with skin produces pain and blisters. Severe deep burns, redness and pain occur with eye contact. Ingestion of K_2O results in burning sensations, abdominal pain, shock or collapse.

Chronic effect/carcinogenicity: Not classifiable as human carcinogen

Calcium Carbonate:

Exposure route: Inhalation, skin/eye contact.

Target organs: Eyes, skin, respiratory system.

Acute effect: Irritation of the eyes, skin and respiratory system and cough. It has been reported that there may be a silicosis risk when using impure cold mix/pre-coat containing in excess of 3% quartz. However, it is claimed that pure calcium carbonate does not cause pneumoconiosis. Adverse health effects have generally not been reported in literature among workers using $CaCO_3$.

Chronic effect/carcinogenicity: Not classifiable as human carcinogen.

Flux Oil:

Flux oil is a mixture of proprietary components. The toxicological information described is a summary of effects of the different components of the mixture

Exposure route: Inhalation, ingestion, skin/eye contact.

Target organs: Skin, eyes and respiratory system.

Acute effect: Inhalation of vapors may cause dizziness, discoordination, vomiting, convulsions, headache, central nervous system depression, and irritation of the respiratory tract. Skin contact can result in irritation; thermal burns may occur in case of hot product. Eye contact can result in irritation, burning, redness, tearing. Ingestion can cause gastrointestinal irritation, nausea, vomiting and diarrhea. If aspiration occurs it may cause chemical pneumonitis with fatal results. Dermatitis may be aggravated by exposure to this material.

Chronic effect/carcinogenicity: Delayed signs of kidney and liver damage may be seen. Prolonged exposure to oil mist can lead to pulmonary fibrosis. Repeated or prolonged skin exposure can cause drying, irritation of skin, skin lesions, oil acne and possibly defatting of the skin. One of the components of Flux oil has been designated by IARC as probable human carcinogen (2A) based on sufficient evidence in experimental animals.

Asphalt Bitumen:

Exposure route: Inhalation, ingestion, skin/eye contact.

Target organs: Eyes, skin and respiratory system

Acute effect: If product is heated or comes in contact with heated surfaces, exposure to asphalt fumes may increase. Asphalt fumes can cause ocular and respiratory irritation leading to coughing, shortness of breath, and headaches. Ingested asphalt has low toxicity however chewing of asphalt can cause gastric masses and stomach obstructions. Contact with hot asphalt can cause second and third degree burns.

Chronic effect/carcinogenicity: Not classifiable as a human carcinogen..

In the event of significant heating, thermal decomposition or a fire various gases may be released. Use of cold mix/pre-coat in

paving operations may also result in the release of some of the following products. The health effects of these products are described below:

Carbon Monoxide: TLV (25 ppm (TWA)) PEL (50 ppm (TWA))

Exposure route: Inhalation.

Target organs: Respiratory system, cardiovascular system, blood, central nervous system.

Acute effect: Inhalation of carbon monoxide causes cell oxidation to be inhibited which results in a reduction of the oxygen carrying capacity to all organs of the body. Resulting acute effects may include confusion, dizziness, headache, nausea, unconsciousness and weakness. High level exposures can result in death.

Chronic effect/carcinogenicity: Prolonged exposure may have effects on the nervous system and the cardiovascular system. Suspected to cause reproductive effects such as neurological problems, low birth weight, increased still births and congenital heart problems.

Carbon Dioxide: TLV (5000 ppm (TWA)) PEL (5000 ppm (TWA))

Exposure route: Inhalation.

Target organs: Respiratory system, cardiovascular system.

Acute effect: Inhalation of carbon dioxide may cause dizziness, headache, and elevated blood pressure. Inhalation of high concentrations of this gas may cause hyperventilation and unconsciousness.

Chronic effect/carcinogenicity: Information on chronic effect of prolonged exposure to this substance is not documented.

Hydrogen Sulfide: TLV (10 ppm) PEL (20 ppm (C))

Exposure route: Inhalation, skin/eye contact

Target organs: Eyes, respiratory system, central nervous system.

Acute effect: Inhalation, even at small levels can cause fatigue, headache, apnea, lung edema, coma, insomnia, irritability of the eyes and respiratory system, dizziness and central nervous system effects. In some cases respiratory paralysis leading to death can occur.

Chronic effect/carcinogenicity: Prolonged exposure to this material can cause toxicosis in people exposed to large concentrations. Not classifiable as a human carcinogen.

Nitrogen Dioxide: TLV (3 ppm (TWA)) PEL (5 ppm (C))

Exposure route: Inhalation, ingestion, skin/eye contact

Target organs: Eyes, skin, cardiovascular system and respiratory system.

Acute effect: Inhalation can cause burning of the respiratory tract, sore throat, cough, lung edema, dizziness, headache, apnea, weakness and vomiting. Contact with the skin and/or eyes will cause redness, pain and possibly severe burns. Exposure to very high concentrations may lead to death.

Chronic effect/carcinogenicity: Not classifiable as a human carcinogen. Prolonged exposure to this material may cause increased susceptibility to respiratory infection may aggravate asthma and allergic disorders.

Ozone: TLV (0.05 ppm for heavy work, 0.08 ppm for moderate work, 0.1 ppm for light work and 0.2 ppm for work <2 hours (TWA)) PEL (0.1 ppm (TWA))

Exposure routes: Inhalation, skin/eye contact.

Target organs: Eyes, skin and respiratory system.

Acute effect: Inhalation may cause irritation of the respiratory tract, cough, headache, shortness of breath, asthmatic reactions and sore throat. Contact with the eyes will result in irritation, pain and redness and may result in loss of vision. It may cause effects on the central nervous system resulting in headache and impaired vigilance and performance.

Chronic effect/carcinogenicity: Not classifiable as a human carcinogen.

Sulfur Dioxide: TLV (2 ppm) PEL (5 ppm)
Exposure route: Inhalation, skin/eye contact.

Target organs: Eyes, skin and respiratory system.

Acute effect: Inhalation may cause irritation of the respiratory tract, asthma-like reactions, reflex spasm of the larynx, cough, shortness of breath, sore throat and lung edema. It is possible that respiratory arrest may occur which can lead to death. Contact with eyes can cause irritation, redness, pain and severe burns.

Chronic effect/carcinogenicity: Not classifiable as a human carcinogen. Repeated or prolonged exposure may aggravate asthma.

XII – ECOLOGICAL INFORMATION

No data available

XIII – DISPOSAL CONSIDERATIONS

WASTE DISPOSAL METHOD

Collect and reuse clean materials. Dispose of waste materials only in accordance with applicable federal, state, and local laws and regulations.

XIV – TRANSPORT INFORMATION

DOT HAZARD CLASSIFICATION

None

PLACARD REQUIRED

None

LABEL REQUIRED

Label as required by the OSHA Hazard Communication standard {29 CFR 1910.1200(f)}, and applicable state and local regulations.

XV – REGULATORY INFORMATION

Crystalline silica, a component of this product, is on the NTP and IARC carcinogen lists, but not on the OSHA carcinogen list. In October 1996, an IARC Working group re-assessing crystalline silica, a component of this product, designated crystalline silica as a human carcinogen (Group 1 carcinogen). Light catalytic cracked distillate, a component of Flux oil has been designated by IARC as probable human carcinogen (2A) based on sufficient evidence in experimental animals but not by NTP, OSHA and ACGIH.

Crystalline silica in October 1996 was listed on the Safe Drinking Water and Toxic Enforcement ACT of 1986 (California Proposition 65) as chemical known to the state to cause cancer or reproductive toxicity. Untreated and mildly treated oils, components of flux oil are listed on the Safe Drinking Water and Toxic Enforcement ACT of 1986 (California Proposition 65) as chemicals known to the state to cause cancer, birth defects or reproductive harm.

XVI – OTHER INFORMATION

ACGIH: American Conference of Governmental Industrial Hygienists
 C: Ceiling limit; the concentration that should not be exceeded during any part of the working exposure
 CFR: US Code of Federal Regulations
 DOT: US Department of Transportation
 IARC: International Agency for Research on Cancer
 IDLH: Immediately Dangerous to Life and Health
 NIOSH: National Institute for Occupational Safety and Health, US Department of Health and Human Services
 NTP: National Toxicology Program
 OSHA: Occupational Safety and Health Administration, US Department of Labor
 PEL: Permissible Exposure Limit
 SARA Title III: Title III of the Superfund Amendments and Reauthorization Act, 1986
 TLV: Threshold Limit Value
 TWA: Time-weighted Average

FOR FURTHER INFORMATION

CONTACT:

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DATE OF PREPARATION 11/07

NOTICE: Martin Marietta Materials believes that the information contained on this Material Safety Data Sheet is accurate. The suggested precautions and recommendations are based on recognized good work practices and experience as of the date of publication. They are not necessarily all-inclusive or fully adequate in every circumstance as not all use circumstances can be anticipated. Also, the suggestions should not be confused with nor followed in violation of applicable laws, regulation, rules or insurance requirement. However, product must not be used in a manner which could result in harm.

NO WARRANTY, EXPRESSED OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR OTHERWISE IS MADE

MSDS 3600-002