

Gilsonite is used in drilling mud fluids and oil well cementing. Gilsonite, in a range of softening points and particle sizes, is a standard ingredient in oil-based drilling muds used in shales and other difficult geological formations. The addition of specially-treated Gilsonite to water-based drilling fluids helps minimize hole washout by stabilizing troublesome shales, and seals off highly permeable sands while reducing torque and drag. The addition of Gilsonite to oil well cements reduces slurry weight without loss of compressive strength and acts as an effective bridging and plugging agent to seal fractures in weak formations while cementing. also Gilsonite use in Mud drilling according to FLC " Filtrate Loss Control " or " Fluid Loss Control " in oil base mud .

OIL & GAS

Fluid Loss Control

INK & PAINT

FOUNDRY GRADE

GILSONITE

Gilsonite Resin is widely used as the primary carbon black wetting agent for black news inks and headset and gravure inks. Gilsonite Resin competes advantageously with petroleum-based hydrocarbon resins, phenolic resins and metal resinates, all of which it can complement or replace to various degrees. Various concentrations of Gilsonite Resin are used to manufacture law-rub-off news inks with superior gloss and tack properties. Special grades of Gilsonite called Selects are also standard ingredients in black ink formulations and are used as additives in asphaltic paints and varnishes.

For Paint , If added to asphaltic paints and varnishes, Gilsonite's unique qualities improve their roughness, gloss and chemical and weather resistance.

Printing Inks, Gilsonite is an important cost-effective ingredients in the manufacture of high quality vehicles for dark printing inks.



Gilsonite is combined with coal and other ingredients as an additive in foundry sands to insure the quality of the molded part by improving mold release and the overall finish of metal castings.

ASPHALT BITUMEN

ROAD CONSTRUCTION

Gilsonite Natural Asphalt , Natural Bitumen , Hard Asphalt or Hard Asphaltum is used as a performance-enhancing agent for asphalt mixes. Gilsonite-modified paving mixes achieve higher PG grades and incorporate perfectly into the asphalt blend with no need for high shear milling as is the case with many other modifiers. Gilsonite can partially or totally replace, or complement, the use of SBS polymers in modified asphalts at a fraction of the cost. Gilsonite-modified asphalts have higher stability, reduced deformation, reduced temperature susceptibility and increased resistance to water stripping than non-modified asphalts. Gilsonite is also used to make both solvent-based and emulsion pavement sealers with superior appearance and weathering properties.

CHEMICAL

Gilsonite combines with many other chemicals and materials that take advantage of its unique physical and chemical properties. Binder and coating applications in metallurgical, wood product, refractory and other industries further demonstrate the versatility and usefulness of this remarkable material.

Gilsonite has many industrial applications, including metal alloy processing, refractory, steel desulfurization, friction products, wood products, waterproof pipe coatings, and adhesives. It is a non-toxic, non-carcinogenic alternative to coal tar pitch as well as an economical alternative to mineral rubber.

About us

We are one of leading manufacturer and miner of Gilsonite" natural asphalt, natural bitumen" and other chemicals necessary for drilling mud across Europe and South America.

Chemical Mine World Ltd was founded in 2003 in Malaysia. The special environment of Malaysia provided Chemical Mine World Ltd with the access to networks of production and consumers of chemical products. Through effective mergers and partnerships with known producers in the Middle East, now Chemical Mine World Ltd produces and supplies a range of custom-processed materials and chemicals essential to drilling and asphalt operations.

We are mainly concentrated on high and medium quality products, and quickly developing our market across Europe and North America. Due to our wide access to different chemical and petrochemical mines in the Middle East, we can offer our products with very attractive and competitive prices.

Chemical Mine World Ltd manufactures and supplies a diverse range of Gilsonite and Natural Asphalt for Road Construction and Drilling Fluid (Drilling MUD, Paint and Coating, Ink, Conditioners and Bitumen Resin

CMWL facility has the prestigious quality certificates of API & OCMA (API & OCMA Spec.Q1).

CMWL has the capacity to produce over 60,000 Metric tons/Year of different powder products in three separate production lines. Operations are continuous and automated, with over 40 personnel working in two daily shifts.

Our Mission:

Our mission is providing high, and medium quality Gilsonite to serve our customers' requirements around the world with highly competitive prices. We are dedicated to high quality control standards, and at the same time flexible to customize products to satisfy our customers' requirements.

•**Quality Control:** Our employees are focused on quality and continually look for new and innovative solutions to customers' needs in the global market. Each product is subject to intense quality control to assure that each material meets the specifications.

•**Products:** CMWC offers consistent quality Gilsonite (Natural Asphalt, Natural Bitumen) for different uses such as Road Construction, Drilling Fluid (Drilling MUD), Paint and Coating, Ink, Conditioners, and Bitumen Resin.

ABOUT THE GILSONITE

Gilsonite is a natural, resinous hydrocarbon. This natural asphalt or Natural bitumen is similar to hard petroleum asphalt and is often called a natural asphalt, asphaltite, uintaite, or asphaltum. Gilsonite is soluble in aromatic and aliphatic solvents, as well as petroleum asphalt. Due to its unique compatibility, Gilsonite is frequently used to harden softer petroleum products. Gilsonite in mass is a shiny, black substance similar in appearance to the mineral obsidian. It is brittle and can be easily crushed into a dark brown powder.

Gilsonite is found below the earth's surface in vertical veins or seams that are generally between two and six feet in width, but can be as wide as 28 feet. The veins are nearly parallel to each other and are oriented in a northwest to southeast direction. They extend many miles in length and as deep as 1500 feet. The vein will show up on the surface as a thin outcropping and gradually widen as it goes deeper. Due to the narrow mining face, Gilsonite is mined today, much like it was 50 or 100 years ago. The primary difference is that modern miners use pneumatic chipping hammers and mechanical hoists.

Other specification according to API or OCMA standards.



Gilsonite Oil & Gas

FLC " FLUID LOSS CONTROL HM HT

HT HP Filtrate Loss Control

HIGH TEMPERATURE , HIGHT MELTING POINT

Treated Gilsonite

APPLICATION & ADVANTAGES

Gilsonite based product which provides optimum filtration control for in water based muds and oil base mud systems. Gilsonite will reduce both API and HTHP filter losses, provide for a more stable wellbore while drilling troublesome shales and clays, and increase emulsion stability in OBM's.

Gilsonite use in oil base mud systems when cement slurry design to combat lost circulation and improve cement slurry properties. About the same time, it was tried and used in water-based drilling fluids to assist in borehole stabilization. use of it as a fluid is loss agent in oil and synthetic muds, used to seal off low pressure zones, preventing differential sticking, lubricity, and in low invasion coring fluid.

shale stabilizer
Gilsonite is widely used to prevent or cure loss of cement slurry circulation while cementing oil and gas wells A high temperature, high-pressure (HTHP) filter loss Gilsonite is widely and effectively used to prevent or cure loss of slurry circulation while cementing oil and gas wells. Also it use in Gilsonite Leads Fight, Against Lost Circulation, Stabilizes Sloughing Shales and Borehole Stabilizera fresh mud. Treat system as needed during drilling operations to control filtrate loss.

LOST CIRCULATION

The primary use for Gilsonite is in restoring lost circulation due to the bridging action of the angular Gilsonite solids at the point of lost returns. Its effectiveness is due to the particle-size distribution. The larger and medium-size particles bridge forming a network which retains the finer particles. Thus, a dense deposit is formed which is sealed by the cement. Decreasing the slurry weight by using an extender helps in controlling lost circulation by reducing the hydrostatic pressure.

Gilsonite is a naturally occurring black asphaltite hydrocarbon with a particle size between 0.2 and 2 mm. For lost circulation control, application rates vary between 50 to 600 kg/m . Because of its melting point, it should not be used where bottom hole temperatures exceed 165-205 °C.

USE AS AN EXTENDER

Gilsonite can be used to lighten the slurry and increase the slurry yield but will still provide a relatively high-strength set cement. Large amounts of water are not required for Gilsonite. The reduction of slurry density is primarily the result of the low specific gravity of the gilsonite.

MIX WATER REQUIREMENTS

One extra gallon of water is normally used for each 25 lb of Gilsonite. Normally P-EBA is required to prevent gravitational separation of a material having such a wide variance in density from the slurry. Because such a small amount of Gilsonite is required, it can be blended into the slurry without the use of P-EBA.

THICKENING TIME

Gilsonite is an inert solid and, owing to the small amount of additional water required, does not appreciably change the thickening time of the slurry.

COMPRESSIVE STRENGTH

Higher compressive strength is generally attainable when solid particles are added to a slurry without adding excessive quantities of water. Laboratory tests indicated the cements containing either gilsonite or ground coal extender have higher strengths at all ages than most other available lightweight or lost-circulation slurries at the same slurry weight, although the strength is less than that of the same neat cement systems without the Gilsonite.

GILSONITE 109GP API Grade

Typical Properties

Softening Point (ASTM E28-92)	185-220°C 356-428°F
Ash (ASTM D271-70M)	<=3%
Moisture (AGC Method)	<=1.5%
Penetration (25°C, 100 gm, 5 sec.)	0-2
Specific Gravity	1.04-1.16
Color in Mass	Black
Flash Point (COC)	320°C; 600°F
Sulfur	0.3%

Typical Particle Sizing (ASTM E11-70)

% Retained (Cumulative)	
Pulverized	
+ 10 mesh	--
+ 35 mesh	0
+ 65 mesh	<=1
+ 100 mesh	<=5
+ 200 mesh	<=20



GILSONITE 109GR API Grade

Typical Properties

Softening Point (ASTM E28-92)	220-250°C 430-482°F
Ash (ASTM D271-70M)	<=3%
Moisture (AGC Method)	<=1.5%
Penetration (25°C, 100 gm, 5 sec.)	0-2
Specific Gravity	1.04-1.16
Color in Mass	Black
Flash Point (COC)	320°C; 600°F
Sulfur	0.3%

GILSONITE 109 GW API Grade

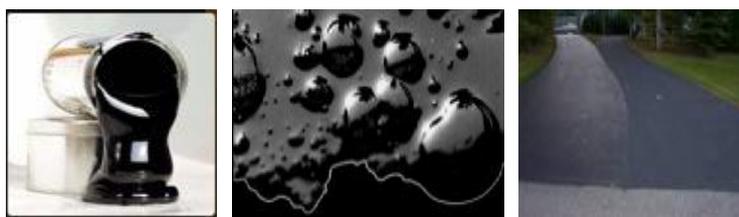
Typical Properties

Softening Point (ASTM E28-92)	250-270°C 482-518°F
Ash (ASTM D271-70M)	<=3%
Moisture (AGC Method)	<=1.5%
Penetration (25°C, 100 gm, 5 sec.)	0-2
Specific Gravity	1.04-1.16
Color in Mass	Black
Flash Point (COC)	320°C; 600°F
Sulfur	0.3%

Asphalt & Bitumen Road construction

Natural Asphalt , Natural Bitumen Grades

Modifier for hot mix binders to achieve broader Useful Temperature Interval (UTI) and improve high temperature properties of bitumen. CH-108R and Ch-110K also Ch109P was developed for use in conjunction with, or as a substitute for, polymers in asphalt.



Gilsonite CH-108R

Typical Properties

Softening Point (ASTM E28-92)	195-215°C 383-420°F
Ash (ASTM D271-70M)	12-16%
Moisture	<1.5%
Penetration (25°C, 100 gm, 5 sec.)	0-2
Color in Mass	Black
Flash Point (COC)	316°C; 600°F
Nitrogen	3% Typical
Sulfur	3-6%
Specific Gravity	1.04

Typical Particle Sizing (ASTM E11-70)

	% Retained (Cumulative)		
	Pulverized		
	30-40	100	200
+ 10 mesh	--	---	---
+ 30 mesh	<=5	---	---
+ 40 mesh	<=18	---	---
+ 100 mesh	---	<=18	---
+ 200 mesh	---	---	<=18

Gilsonite CH-109P

Typical Properties

Softening Point (ASTM E28-92)	185-205°C 365-401°F
Ash (ASTM D271-70M)	<10%
Moisture	<1.5%
Penetration (25°C, 100 gm, 5 sec.)	0-2
Color in Mass	Black
Flash Point (COC)	316°C; 600°F
Nitrogen	3% Typical
Sulfur	3-6%
Specific Gravity	1.04

Gilsonite CH-110 A

Typical Properties

Softening Point (ASTM E28-92)	165-185°C 329-365°F
Ash (ASTM D271-70M)	<3% 5% Guaranteed
Moisture	<1.5%
Penetration (25°C, 100 gm, 5 sec.)	0-2
Color in Mass	Black
Flash Point (COC)	316°C; 600°F
Solubility	>95%
Nitrogen	3% Typical
Sulfur	3-6%
Specific Gravity	1.04

Gilsonite Ink & Paint

Gilsonite® resin Selects **PI-300** Grade is readily soluble without heating in aromatic solvents (Benzene, Toluene, Xylene) and in most chlorinated solvents. It is also soluble without heating in aliphatic and low aromatic solvents (VM&P and other Napthas, Ink Oils and Mineral Spirits), but mixing time is longer. Without heating, the pulverized grade is recommended.

Films developed from Selects **PI-300** have a very dark color with little bronzing effect. Solutions do not thicken appreciably upon aging. Selects **PI-300** Grade is compatible with drying oils, rosins, hydrocarbon resins, elastomers, asphalts, and waxes for specialty applications. It has limited solubility in most alcohols and ketones.

Gilsonite Grade PI-300

Principal Applications

Printing Inks (Gravure, Headset, New sink)
 Paints and Stains
 Protective Coatings

Properties

Viscosity (25°C, 30% solids, Magie 470)	5000 - 20000 cPs
Softening Point (ASTM E28-92)	180-205°C 385-400°F
Ash (ASTM D-271-70 M)	<1.5% Typical 3% Max. Guaranteed
Moisture (AGC Method)	<1% Typical 1.5% Max. Guaranteed
Penetration (25°C, 100 gm, 5 sec)	0
Flash Point (COC)	400°C; 700°F
Sulfur	3%
Specific Gravity	1.04
Acid No.	<3
Color In Mass	Black

Typical Particle Sizing (ASTM (E11-70))

	% Retained (Cumulative)	
	Small Lump	Pulverized
+ 4 mesh	0.2	--
+ 10 mesh	3.0	--
+ 35 mesh	--	0.2
+ 65 mesh	55.0	2.0
+ 100 mesh	--	8.0
+ 150 mesh	77.0	--
+ 200 mesh	--	35.0



Gilsonite Foundry

Gilsonite Foundry Grade

Grade CH-109P FG

Principal Applications

Foundry Sand Additive
 Refractories
 Ingot Mold Coating
 Briquette or Pellet Binder



Typical Properties

Softening Point (ASTM E28-92)	160-182°C 320-360°F
Ash (ASTM D271-70 M)	3.2%
Moisture (AGC Method)	5.0% Maximum
Penetration (25°C, 100 gm, 5 sec.)	2.0% Maximum
Color in Mass	0
Flash Point (COC)	Black
Sulfur	316°C; 600°F
Specific Gravity	0.3%
Fixed Carbon	1.05
BTU per pound	18%
Volatile Combustible Matter at 1900°F, ASTM D271-4	18,000
Lustrous Carbon Content	81%
Coking Value	35-38%
	25-30%

Typical Elemental Analysis, Weight %

Carbon	85%
Hydrogen	10%
Nitrogen	3.0%
Oxygen	1.5%
Silicon, Nickel, & Trace Elements	0.3%

Typical Particle Sizing

% Retained (Cumulative)

	<u>Super Coarse</u>	<u>Small Lump</u>	<u>Semi-Pulverized</u>	<u>Pulverized</u>
4 mesh	<=3	<=3		
10 mesh	<=20	<=12	<=0.5	<=0.1
30 mesh				<=1.3
50 mesh				<=8.5
65 mesh	>=70	>=45	<=23	<=30.0
100 mesh				
150 mesh	>=90	>=70	<=58	
200 mesh				

Steel Making Additives , A Fiberboard Wood Products
 A Binder in Wood Products, Gilsonite in Construction Mastics
 Metallurgical Briquette or Pellet Binder,
 Gilsonite in Adhesives, Contact Adhesives and Hot Melt Adhesives, Gilsonite in
 Asphalt Modification and Improvement
 Asphalt Pavement Sealer, Explosives
 Briquette or Pellet Binder,

Gilsonite CH-109P Grade

Typical Properties

Softening Point (ASTM E28-92)	165-205°C 330-400°F
Ash (ASTM D271-70 M)	6.0%
Moisture (AGC Method)	10.0% Max. Guaranteed 0.3%
Penetration (25°C, 100 gm, 5 sec.)	0.5% Max. Guaranteed 0
Color in Mass	Black
Flash Point (COC)	316°C; 600°F
Sulfur	0.3%
Specific Gravity	1.05
Fixed Carbon	18%
BTU per pound	16,000-18,000
Volatile Combustible Matter at 1900°F, ASTM D271-4	75-81%
Lustrous Carbon Content	25-35%
Coking Value	20-25%

Typical Elemental Analysis, Weight %

Carbon	77.0%
Hydrogen	9.0%
Nitrogen	3.2%
Oxygen	2.0%
Silicon, Nickel, & Trace Elements	5.0%

Typical Particle Sizing

	% Retained (Cumulative)	
	Small Lump	Pulverized
+ 4 mesh	0.2	--
+ 10 mesh	3.0	--
+ 30 mesh	--	0.1
+ 50 mesh	--	1.3
+ 65 mesh	55.0	--
+ 100 mesh	--	8.5
+ 150 mesh	77.0	--
+ 200 mesh	--	30.0



Physical & Chemical

Physical Properties of Gilsonite

Color in Mass	Black
Color in Streak or Powder	Brown - Dark Brown
Softening Point	265-600 °F
Moisture Content	0.5 - 3.5% %
Ash Content	0.5 % - 12%
Specific Gravity @ 77°F	1.04-1.06
Hardness (Moh's Scale)	2
Penetration	0 - 2
Volatility, Weight %, 5 Hours @ 325°F	< 2%
5 Hours @ 400°F	< 4%
5 Hours @ 500°F	< 5%
Flash Point, C.O.C.	450-600 °F
Acid Value	2.3
Saponification Value	5.6
Iodine Number	0
Heat of Combustion	17,900 Btu / lb.
Heat of Fusion	9990 Btu / lb.
Specific Heat of Solid Phase	0.52 Btu / lb. / °F
Specific Heat of Liquid Phase	0.61 Btu / lb. / °F
Glass Transition Temperature, T _g	185-250 °F
Bulk Density, Lump	40 lbs. / ft ³
Electrical Resistivity	4.0 x 10 ¹² ohm-cm
Viscosity, Brookfield @ 375°F	
@ 400°F	55,000 cps
@ 425°F	22,800 cps
@ 450°F	6,600 cps 2,800 cps

Proximate Analysis: Weight %

Carbon	70-80
Hydrogen	20-25
Nitrogen	3.3
Sulfur	3
Oxygen	1.4
Trace elements	0.1
	100.0

Aliphatic carbon	68.3
Aromatic carbon	31.7

H/C atomic ratio 1.42

Weight %

Volatile matter	75-78%
Fixed carbon	20%
Ash	2%

100.0

Molecular Structure:

A variety of sophisticated analytical tests have been run on Gilsonite from the Uintah Basin to characterize its unique properties. For reference, the test methods include vacuum thermal gravimetric analysis (TGA), nuclear magnetic resonance (NMR), Fourier transform infrared spectrometry (FTIR), vapor pressure osometry (VPO), high performance liquid chromatography (HPLC), rapid capillary gas chromatography (RCAP), and several fractionation techniques. H/C ratios and NMR analysis indicate the presence of a significant aromatic fraction. Most of the aromatics exist in stable, conjugated systems, probably porphyrin-like structures that relate to the geologic source of the product. The remainder of the product consists of long, paraffinic chains.

A very unique feature of Gilsonite is its high nitrogen content, which is present mainly as pyrrole, pyridine, and amide functional groups. Phenolic and carbonyl groups are also present. The low oxygen content relative to nitrogen suggests that much of the nitrogen has basic functionality. This probably accounts for Gilsonite's special surface wetting properties and resistance to free radical oxidation. The average molecular weight of Gilsonite is about 3000. This is very high relative to other asphalt products and to most synthetic resins. This may relate to Gilsonite's "semi-polymeric" behavior when used as a modifying resin in polymeric and elastomeric systems. There is some reactive potential in Gilsonite. Crosslinking and addition type reactions have been observed. Gilsonite is known to react with formaldehyde compounds under certain conditions.

Softening Point, °F

Typical Component Analysis	<u>290</u>	<u>320</u>	<u>350</u>	<u>375</u>
Asphaltenes	57	66	71	76
Resins (Maltenes)	37	30	27	21
Oils	<u>6</u>	<u>4</u>	<u>2</u>	<u>3</u>
	100	100	100	100



Emergency Phone Number: +60 17-242 4951 sales@gilsonite.org <http://gilsonite.org>

This Material Safety Data Sheet contains environmental, health and toxicology information for your employees. Please make sure this information is given to them. It also contains information to help you meet community right-to-know/emergency response reporting requirements under SARA Title III and many other laws. If you resell this product, this MSDS must be given to the buyer or the information incorporated in your MSDS.

Discard any previous edition of this MSDS.

This MSDS is formatted to provide you with useful hazard warnings and health evaluations and to facilitate your compliance with local, State and Federal regulations.

1. PRODUCT IDENTIFICATION

Gilsonite Resin

- A HAZARD WARNING IS NOT REQUIRED FOR THIS PRODUCT UNDER OSHA HAZARD COMMUNICATION STANDARDS (29 CFR 1910.1200)

PRODUCT INFORMATION: +60 17-242 4951

2. FIRST AID

EYE CONTACT:

No first aid procedures are required. However, as a precaution flush eyes with fresh water for 15 minutes. Remove contact lenses if worn.

SKIN CONTACT:

No first aid procedures are required. As a precaution, wash skin thoroughly with soap and water. Remove and wash contaminated clothing.

INHALATION:

If any signs or symptoms as described in this document occur, move the person to fresh air. If any of these effects continue, see a doctor.

INGESTION:

Not expected to be an ingestion problem, no first aid procedures are required.

3. IMMEDIATE HEALTH EFFECTS

EYE CONTACT:

This substance may cause eye irritation due to the abrasive action of the dust. The degree of the injury will depend on the amount of material that gets into the eye and the speed and thoroughness of the first aid treatment. Signs and symptoms may include pain, tears, swelling, redness, and blurred vision. This hazard evaluation is based on the data from similar materials.

SKIN IRRITATION:

This substance is not expected to cause prolonged or significant skin irritation. This hazard evaluation is based on data from similar materials.

DERMAL TOXICITY:

NDA

RESPIRATORY/INHALATION:

Breathing the dust at concentrations that exceed the recommended exposure standard may be irritating to the respiratory tract. Signs and symptoms of respiratory tract irritation may include, but may not be limited to, one or more of the following: nasal discharge, sore throat, coughing, bronchitis, pulmonary edema and difficulty in breathing.

INGESTION:

The systemic toxicity of this substance has not been determined. However, it should be practically non-toxic to internal organs if swallowed.

4. PROTECTIVE EQUIPMENT

EYE PROTECTION:

Do not get this material in your eyes. Eye contact can be avoided by wearing chemical goggles.

SKIN PROTECTION:

No special skin protection is necessary.

RESPIRATORY PROTECTION:

No special respiratory protection is normally required. However, if operating conditions create high airborne concentrations, the use of an approved respirator is recommended.

VENTILATION:

No special ventilation is usually necessary. However, if operating conditions create high airborne concentrations of this material, special ventilation may be needed.

5. FIRE PROTECTION

FLASH POINT: (COC) 599 o F

AUTOIGNITION: NDA

FLAMMABILITY: NDA

EXTINGUISHING MEDIA: CO₂, Dry Chemical, Foam, Water Fog

NFPA RATINGS: Health 0; Flammability 1; Reactivity 0; Special NDA;

(Least - 0, Slight - 1, Moderate - 2, High - 3, Extreme - 4). These values are obtained using the guidelines or published evaluations prepared by the National Fire Protection Association or, if applicable, the National Paint and Coating Association, and do not necessarily reflect the hazard evaluation of American Gilsonite Company. Read the entire document and label before using this product.

FIRE FIGHTING PROCEDURES:

For fires involving this material, do not enter any enclosed or confined fire space without proper protective equipment, including self-contained breathing apparatus.

COMBUSTION PRODUCTS:

Normal combustion forms carbon dioxide, water vapor and may produce oxides of nitrogen. Incomplete combustion can produce carbon monoxide.

6. STORAGE, HANDLING, AND REACTIVITY

HAZARDOUS DECOMPOSITION PRODUCTS:

NDA

STABILITY:

Stable.

HAZARDOUS POLYMERIZATION:

Polymerization will not occur.

INCOMPATIBILITY:

May react with strong oxidizing agents, such as chlorates, nitrates, peroxides, etc.

SPECIAL PRECAUTIONS:

Dusts are subject to combustion or explosion upon contact with sparks, open flames, or temperatures in excess of 1000°F (570°C). Any potential of sparking or ignition should be moved prior to pulverizing or other process resulting in dust generation. Where long-term exposures to vapors, distillates or solids resulting from heating to temperatures above 550°F (288°C) can be anticipated, protective clothing and respiratory equipment are recommended.

7. PHYSICAL PROPERTIES

SOLUBILITY: Soluble in various petroleum and chlorinated solvents.

APPEARANCE: Black Solid

BOILING POINT: NA

MELTING POINT: 275 - 400 °F (135 - 205°C)

EVAPORATION: NA

SPECIFIC GRAVITY: 1.04 - 1.06

VAPOR PRESSURE: NDA

PERCENT VOLATILE (VOLUME %): 2% @ 325 F (163 C) for 5 hrs.

VAPOR DENSITY (AIR = 1): NA

8. SPILL RESPONSE AND DISPOSAL

CHEMTREC EMERGENCY PHONE NUMBER: +60 17-242 4951 (24 hour).

SPILL/LEAK PRECAUTIONS:

This material is not expected to present any environmental problem.

Clean up spills immediately, observing precautions in Protective Equipment section.

DISPOSAL METHODS:

Place contaminated materials in disposable containers and dispose of in a manner consistent with applicable regulations. Contact local environmental or health authorities for approved disposal of this material.

9. EXPOSURE STANDARDS, REGULATORY LIMITS AND COMPOSITION

COMPOSITIONS COMMENT:

All the components of this material are on the Toxic Substances Control Act Chemical Substances Inventory.

Based upon information reviewed to date, this product fits the ACGIH definition for nuisance dust. The ACGIH TLV is 5mg/m³ and the STEL is 10mg/m³. The OSHA PEL for respirable dust is 5mg/m³.

The percent compositions are given to allow for the various ranges of the components present in the whole product and may not equal 100%.

PERCENT/CAS# COMPONENT/REGULATORY LIMITS

100.0% Gilsonite Resin

CONTAINING

100.0% Hydrocarbon - Black Solid

CAS 12002-43-6

TLV - Threshold Limit Value PEL - Permissible Exposure Limit

STEL - Short-term Exposure Limit TPQ - Threshold Planning Quantity

RQ - Reportable Quantity

10. REGULATORY INFORMATION

DOT SHIPPING NAME: NOT DESIGNATED AS A HAZARDOUS MATERIAL BY THE FEDERAL DOT.

DOT HAZARD CLASS: Non Hazardous

DOT IDENTIFICATION: NA

SARA 311 CATEGORIES:

1. Immediate (Acute) Health Effects; NO

2. Delayed (Chronic) Health Effects; NO

3. Fire Hazard; YES

4. Sudden Release of Pressure Hazard; NO

5. Reactivity Hazard; NO

WHEN A COMPONENT OF THIS MATERIAL IS SHOWN IN THIS SECTION, THE REGULATORY LISTS ON WHICH IT APPEARS IS INDICATED.

REGULATORY LISTS:

01=SARA 313 02=MASS RTK 03=NTP Carcinogen
04=CA Prop. 65 05=MI 406 06=IARC Group 1
07=IARC Group 2A 08=IARC Group 2B 09=SARA 302/304
10=PA RTK 11=NJ RTK 12=CERCLA 302.4
13=MN RTK 14=ACGIH TLV 15=ACGIH STEL
16=ACGIH Calculated TLV 17=OSHA PEL 18=OSHA STEL
19=EPA Carcinogen 20=TSCA SECT 4 21=TSCA SECT 5 SNUR
22=TSCA SECT 6 RULE 23=TSCA SECT 12 EXPORT 24=TSCA SECT 8A CAIR
25=TSCA SECT 8D REPORT 26=TSCA SECT 8E 27=Canadian WHMIS

11. PRODUCT TOXICOLOGY DATA

EYE CONTACT:

No product toxicology data available. The hazard evaluation was based on data from similar materials.

SKIN IRRITATION:

No product toxicology data available. The hazard evaluation was based on data from similar materials.

DERMAL TOXICITY:

No product toxicology data available. The hazard evaluation was based on data from similar materials.

RESPIRATORY/INHALATION:

No product toxicology data available. The hazard evaluation was based on data from similar materials

INGESTION:

No product toxicology data available. The hazard evaluation was based on data from similar materials

12. ADDITIONAL HEALTH DATA

ADDITIONAL HEALTH DATA COMMENT:

No significant health effects were observed in a chronic feeding study conducted for the National Toxicology Program (NTP) where mice and rats were fed diets containing either 2% or 4% GILSONITE for their lifetimes. In another study, 10% GILSONITE in benzene applied 3 times a week for 80 weeks to the skin of mice caused no increase in skin cancer over what was observed in the control group. In a third study, a sample of GILSONITE heated to 550°F (288°C) and cooled was not found to be mutagenic in the Ames assay. The National Institute for Occupational Safety and Health was unable to detect polynuclear aromatic hydrocarbons in GILSONITE. The information presented above suggests that GILSONITE has a low order of toxicity and is not carcinogenic.

Although ER Resin is not a carcinogen, processes in which GILSONITE is brought to very high temperatures may alter its complex hydrocarbon structure and may produce carcinogenic substances. Thermal cracking of complex hydrocarbon is known to produce polynuclear aromatic hydrocarbons, some of which are known to be carcinogenic and mutagenic. Ames mutagenicity screening tests were conducted on samples of GILSONITE which were heated. A sample heated to 650°F (343°C) and allowed to cool was found to be mutagenic. In another study, GILSONITE distilled at approximately 2500°F (1371°C) and dissolved in benzene was carcinogenic when applied 3 times a week for 80 weeks to the skin of mice.

Handling ER Resin is not expected to cause cancer. However, skin contact and breathing of vapor or mists derived from certain processes in which ER Resin is heated to high temperatures should be avoided. Please refer to the Special Precautions section of this document.

The above information is based on the data of which we are aware and is believed to be correct as of the date hereof. Since the information contained herein may be applied under conditions beyond our control and with which we may be unfamiliar and since data made available subsequent to the date hereof may suggest modification of the information, we do not assume any responsibility for the results of its use. This information is furnished upon condition that the person receiving it shall make his own determination for the suitability of the material for his particular purpose.



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