

Product Name: ASPHALT EMULSION CSS-1
Revision Date: 11 Jul 2018
Page 1 of 11

SAFETY DATA SHEET

SECTION 1 PRODUCT AND COMPANY IDENTIFICATION

PRODUCT

Product Name: ASPHALT EMULSION CSS-1
Product Description: Asphalt emulsion
Product Code: 1010902020F0, 282103-88
Recommended Use: Mainly used for road paving, Miscellaneous industrial applications

COMPANY IDENTIFICATION

Supplier: Esso (Thailand) Public Company Limited
3195/17-29 Rama IV Road, Klong Ton
Klong Toey District
Bangkok 10110 Thailand

24 Hour Emergency Telephone 001-800-13-203-9987 / +1-703-527-3887
Supplier General Contact 662-407-4000
FAX 662-407-4800

SECTION 2 HAZARDS IDENTIFICATION

This material is hazardous according to regulatory guidelines (see (M)SDS Section 15).

CLASSIFICATION:

Skin irritation: Category 3. Carcinogen: Category 2.
Acute aquatic toxicant: Category 3. Chronic aquatic toxicant: Category 3.

LABEL ELEMENTS:

Pictograms:



Signal Word: Warning

Hazard Statements:

H316: Causes mild skin irritation. H351: Suspected of causing cancer.
H412: Harmful to aquatic life with long lasting effects.

Product Name: ASPHALT EMULSION CSS-1
 Revision Date: 11 Jul 2018
 Page 2 of 11

Precautionary Statements:

P201: Obtain special instructions before use. P202: Do not handle until all safety precautions have been read and understood. P273: Avoid release to the environment. P280: Wear protective gloves and clothing.
 P308 + P313: IF exposed or concerned: Get medical advice/attention. P332 + P313: If skin irritation occurs: Get medical advice/attention.
 P405: Store locked up.
 P501: Dispose of contents and container in accordance with local regulations.

Contains: DIESEL OIL; KEROSENE

Other hazard information:

PHYSICAL / CHEMICAL HAZARDS

Contact with hot material can cause thermal burns which may result in permanent damage or blindness.

HEALTH HAZARDS

High-pressure injection under skin may cause serious damage. Mildly irritating to skin. May be irritating to the eyes, nose, throat, and lungs.

ENVIRONMENTAL HAZARDS

No additional hazards.

NOTE: This material should not be used for any other purpose than the intended use in Section 1 without expert advice. Health studies have shown that chemical exposure may cause potential human health risks which may vary from person to person.

SECTION 3	COMPOSITION / INFORMATION ON INGREDIENTS
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This material is defined as a mixture.

Hazardous Substance(s) or Complex Substance(s) required for disclosure

Name	CAS#	Concentration *	GHS Hazard Codes
DIESEL OIL..C9-20	68334-30-5	0 - 5%	H227, H304, H332, H351, H315, H373, H401, H411
KEROSENE	8008-20-6	0 - 5%	H226, H304, H336, H351, H315, H401, H411

* All concentrations are percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

SECTION 4	FIRST AID MEASURES
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Product Name: ASPHALT EMULSION CSS-1

Revision Date: 11 Jul 2018

Page 3 of 11

INHALATION

Remove from further exposure. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. If respiratory irritation, dizziness, nausea, or unconsciousness occurs, seek immediate medical assistance. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.

SKIN CONTACT

If product is injected into or under the skin, or into any part of the body, regardless of the appearance of the wound or its size, the individual should be evaluated immediately by a physician as a surgical emergency. Even though initial symptoms from high pressure injection may be minimal or absent, early surgical treatment within the first few hours may significantly reduce the ultimate extent of injury. For hot product: Immediately immerse in or flush affected area with large amounts of cold water to dissipate heat. Cover with clean cotton sheeting or gauze and get prompt medical attention. Remove contaminated clothing. Dry wipe exposed skin and cleanse with waterless hand cleaner and follow by washing thoroughly with soap and water. For those providing assistance, avoid further skin contact to yourself or others. Wear impervious gloves. Launder contaminated clothing separately before reuse. Discard contaminated articles that cannot be laundered.

EYE CONTACT

Flush thoroughly with water for at least 15 minutes. Get medical assistance.

INGESTION

Seek medical attention.

NOTE TO PHYSICIAN

None

SECTION 5

FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA

Appropriate Extinguishing Media: Use dry chemical, carbon dioxide (CO₂), or a dry, non-combustible material such as dry sand or earth to extinguish flames.

Inappropriate Extinguishing Media: Straight streams of water

FIRE FIGHTING

Fire Fighting Instructions: Evacuate area. Prevent run-off from fire control or dilution from entering streams, sewers or drinking water supply. Fire-fighters should use standard protective equipment and in enclosed spaces, self-contained breathing apparatus (SCBA). Use water spray to cool fire exposed surfaces and to protect personnel.

Hazardous Combustion Products: Asphalt fumes, Incomplete combustion products, Oxides of carbon, Smoke, Fume, Sulphur oxides

FLAMMABILITY PROPERTIES

Flash Point [Method]: N/A

Flammable Limits (Approximate volume % in air): LEL: N/A UEL: N/A

Autoignition Temperature: N/D

SECTION 6	ACCIDENTAL RELEASE MEASURES
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NOTIFICATION PROCEDURES

In the event of a spill or accidental release, notify relevant authorities in accordance with all applicable regulations.

PROTECTIVE MEASURES

Avoid contact with spilled material. See Section 5 for fire fighting information. See the Hazard Identification Section for Significant Hazards. See Section 4 for First Aid Advice. See Section 8 for advice on the minimum requirements for personal protective equipment. Additional protective measures may be necessary, depending on the specific circumstances and/or the expert judgment of the emergency responders.

For emergency responders: Respiratory protection: half-face or full-face respirator with filter(s) for organic vapor and, when applicable, H₂S, or Self Contained Breathing Apparatus (SCBA) can be used depending on the size of spill and potential level of exposure. If the exposure cannot be completely characterized or an oxygen deficient atmosphere is possible or anticipated, SCBA is recommended. Chemical goggles and face shield are recommended if contact of eyes with hot product or vapours is possible. Small spills: normal work clothes are usually adequate. Large spills: full body suit of chemical and thermal resistant material is recommended. Work gloves (preferably gauntlet style) that provide adequate chemical resistance. Note: gloves made of polyvinyl acetate (PVA) are not water-resistant and are not suitable for emergency use. If contact with hot product is possible or anticipated, heat-resistant and thermally insulated gloves are recommended.

SPILL MANAGEMENT

Land Spill: Stop leak if you can do so without risk. Small Spills: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. If liquid is too viscous for pumping, shovel it up into a suitable container for recycle or disposal.

Water Spill: Seek advice of a specialist. This product emulsifies, disperses or is miscible in water.

Water spill and land spill recommendations are based on the most likely spill scenario for this material; however, geographic conditions, wind, temperature, (and in the case of a water spill) wave and current direction and speed may greatly influence the appropriate action to be taken. For this reason, local experts should be consulted. Note: Local regulations may prescribe or limit action to be taken.

ENVIRONMENTAL PRECAUTIONS

Large Spills: Dyke far ahead of liquid spill for later recovery and disposal. Prevent entry into waterways, sewers, basements or confined areas.

SECTION 7	HANDLING AND STORAGE
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HANDLING

Avoid all personal contact. Emulsion is not flammable although it can boil violently if overheated in an enclosed space or in contact with conventional hot bitumen.

When heating to normal handling temperatures, avoid local overheating. Prevent small spills and leakage to avoid slip hazard.

Product Name: ASPHALT EMULSION CSS-1
 Revision Date: 11 Jul 2018
 Page 5 of 11

Loading/Unloading Temperature: < 90°C (194°F)

Static Accumulator: N/D

STORAGE

Do not store in open or unlabelled containers. Do not allow material to freeze.

Storage Temperature: < 90°C (194°F)

SECTION 8	EXPOSURE CONTROLS / PERSONAL PROTECTION
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EXPOSURE LIMIT VALUES

Exposure limits/standards (Note: Exposure limits are not additive)

Substance Name	Form	Limit/Standard	Note	Source
DIESEL OIL..C9-20	Stable Aerosol.	TWA 5 mg/m3	Skin	ExxonMobil
DIESEL OIL..C9-20	Vapour.	TWA 200 mg/m3	Skin	ExxonMobil
DIESEL OIL..C9-20 [total hydrocarb, vapour&aerosol]	Inhalable fraction and vapour	TWA 100 mg/m3	Skin	ACGIH
KEROSENE	Stable Aerosol.	TWA 5 mg/m3	Skin	ExxonMobil
KEROSENE	Vapour.	TWA 200 mg/m3	Skin	ExxonMobil
KEROSENE [as total hydrocarbon vapor]	Non-Aerosol	TWA 200 mg/m3	Skin	ACGIH
Asphalt fumes [benzene solubles]	Inhalable fraction.	TWA 0.5 mg/m3		ACGIH

NOTE: Limits/standards shown for guidance only. Follow applicable regulations.

ENGINEERING CONTROLS

The level of protection and types of controls necessary will vary depending upon potential exposure conditions. Control measures to consider:

No special requirements under ordinary conditions of use and with adequate ventilation.

PERSONAL PROTECTION

Personal protective equipment selections vary based on potential exposure conditions such as applications, handling practices, concentration and ventilation. Information on the selection of protective equipment for use with this material, as provided below, is based upon intended, normal usage.

Respiratory Protection: If engineering controls do not maintain airborne contaminant concentrations at a level which is adequate to protect worker health, an approved respirator may be appropriate. Respirator selection, use, and maintenance must be in accordance with regulatory requirements, if applicable. Types of respirators to be considered for this material include:

Product Name: ASPHALT EMULSION CSS-1

Revision Date: 11 Jul 2018

Page 6 of 11

Positive-pressure, air-supplied respirator in areas where H₂S vapours may accumulate is recommended. Acid gas/organic vapour,HEPA,Particulate

For high airborne concentrations, use an approved supplied-air respirator, operated in positive pressure mode. Supplied air respirators with an escape bottle may be appropriate when oxygen levels are inadequate, gas/vapour warning properties are poor, or if air purifying filter capacity/rating may be exceeded.

Hand Protection: Any specific glove information provided is based on published literature and glove manufacturer data. Glove suitability and breakthrough time will differ depending on the specific use conditions. Contact the glove manufacturer for specific advice on glove selection and breakthrough times for your use conditions. Inspect and replace worn or damaged gloves. The types of gloves to be considered for this material include:

Chemical resistant gloves are recommended. If product is hot, thermally protective, chemical resistant gloves are recommended. If contact with forearms is likely, wear gauntlet style gloves. Viton

Eye Protection: If contact with material may occur, safety glasses and face shield are recommended.

Skin and Body Protection: Any specific clothing information provided is based on published literature or manufacturer data. The types of clothing to be considered for this material include:

Chemical/oil resistant clothing is recommended. If product is hot, thermally protective, chemical resistant apron and long sleeves are recommended.

Specific Hygiene Measures: Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Discard contaminated clothing and footwear that cannot be cleaned. Practice good housekeeping.

ENVIRONMENTAL CONTROLS

Comply with applicable environmental regulations limiting discharge to air, water and soil. Protect the environment by applying appropriate control measures to prevent or limit emissions.

SECTION 9 PHYSICAL AND CHEMICAL PROPERTIES

Note: Physical and chemical properties are provided for safety, health and environmental considerations only and may not fully represent product specifications. Contact the Supplier for additional information.

GENERAL INFORMATION

Physical State: Liquid

Colour: Dark Brown

Odour: N/D

Odour Threshold: N/D

IMPORTANT HEALTH, SAFETY, AND ENVIRONMENTAL INFORMATION

Relative Density (at 15 °C): 0.98

Flammability (Solid, Gas): N/A

Flash Point [Method]: N/A

Product Name: ASPHALT EMULSION CSS-1
 Revision Date: 11 Jul 2018
 Page 7 of 11

Flammable Limits (Approximate volume % in air): LEL: N/A UEL: N/A
Autoignition Temperature: N/D
Boiling Point / Range: N/D
Decomposition Temperature: N/D
Vapour Density (Air = 1): N/D
Vapour Pressure: < 0.013 kPa (0.1 mm Hg) at 20 °C
Evaporation Rate (n-butyl acetate = 1): N/D
pH: 2.5 - 4
Log Pow (n-Octanol/Water Partition Coefficient): N/D
Solubility in Water: Disperses
Viscosity: <1000 cSt (1000 mm²/sec) at 40°C
Oxidizing Properties: See Hazards Identification Section.

OTHER INFORMATION

Freezing Point: N/D
Melting Point: N/A

SECTION 10 STABILITY AND REACTIVITY

STABILITY: Material is stable under normal conditions.

CONDITIONS TO AVOID: Freezing temperatures.

MATERIALS TO AVOID: Alkalies, Halogens, Strong Acids, Strong oxidisers

HAZARDOUS DECOMPOSITION PRODUCTS: Material does not decompose at ambient temperatures.

POSSIBILITY OF HAZARDOUS REACTIONS: Hazardous polymerization will not occur.

SECTION 11 TOXICOLOGICAL INFORMATION

ACUTE TOXICITY

Route of Exposure	Conclusion / Remarks
Inhalation	
Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Elevated temperatures or mechanical action may form vapours, mist, or fumes which may be irritating to the eyes, nose, throat, or lungs.
Ingestion	
Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Skin	
Toxicity: No end point data for material.	Minimally Toxic. Based on assessment of the components.
Irritation: No end point data for material.	Negligible irritation to skin at ambient temperatures. Based on assessment of the components.

Product Name: ASPHALT EMULSION CSS-1
 Revision Date: 11 Jul 2018
 Page 8 of 11

Eye	
Irritation: No end point data for material.	May cause mild, short-lasting discomfort to eyes. Based on assessment of the components.

OTHER HEALTH EFFECTS FROM SHORT AND LONG TERM EXPOSURE

Anticipated health effects from sub-chronic, chronic, respiratory or skin sensitization, mutagenicity, reproductive toxicity, carcinogenicity, target organ toxicity (single exposure or repeated exposure), aspiration toxicity and other effects based on human experience and/or experimental data.

For the product itself:

Asphalt: May contain low levels of polycyclic aromatic compounds (PACs), some of which are suspected of causing cancer under conditions of poor industrial hygiene and prolonged repeated contact. These PACs may also be inhaled. Inhalation studies at high concentrations of fumes resulted in bronchitis, pneumonitis, fibrosis and cell damage. Avoid contact with the asphalt and inhalation of vapour or aerosol from it.

Contains:

HYDROGEN SULPHIDE: Chronic health effects due to repeated exposures to low levels of H2S have not been established. High level (700 ppm) acute exposure can result in sudden death. High concentrations will lead to cardiopulmonary arrest due to nervous system toxicity and pulmonary edema. Lower levels (150 ppm) may overwhelm sense of smell, eliminating warning of exposure. Symptoms of overexposure to H2S include headache, fatigue, insomnia, irritability, and gastrointestinal problems. Repeated exposures to approximately 25 ppm will irritate mucous membranes and the respiratory system and have been implicated in some eye damage. Kerosene: Carcinogenic in animal tests. Lifetime skin painting tests produced tumours, but the mechanism is due to repeated cycles of skin damage and restorative hyperplasia. This mechanism is considered unlikely in humans where such prolonged skin irritation would not be tolerated. Did not cause mutations in-vitro. Inhalation of vapours did not result in reproductive or developmental effects in laboratory animals. Inhalation of high concentrations in animals resulted in respiratory tract irritation, lung changes and some reduction in lung function. Non-sensitizing in animal tests.

IARC Classification:

The following ingredients are cited on the lists below: None.

--REGULATORY LISTS SEARCHED--

1 = IARC 1

2 = IARC 2A

3 = IARC 2B

SECTION 12	ECOLOGICAL INFORMATION
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The information given is based on data for the material, components of the material, or for similar materials, through the application of bridging principals.

ECOTOXICITY

Material -- Expected to be harmful to aquatic organisms. May cause long-term adverse effects in the aquatic environment.

PERSISTENCE AND DEGRADABILITY

Product Name: ASPHALT EMULSION CSS-1
Revision Date: 11 Jul 2018
Page 9 of 11

Biodegradation:

Components -- Expected to be inherently biodegradable
Majority of components -- Expected to be persistent.

Atmospheric Oxidation:

More volatile component -- Expected to degrade rapidly in air

SECTION 13	DISPOSAL CONSIDERATIONS
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Disposal recommendations based on material as supplied. Disposal must be in accordance with current applicable laws and regulations, and material characteristics at time of disposal.

DISPOSAL RECOMMENDATIONS

Dispose of waste at an appropriate treatment and disposal facility in accordance with applicable laws and regulations, and product characteristics at time of disposal.

Empty Container Warning Empty Container Warning (where applicable): Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. DO NOT PRESSURISE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY EXPLODE AND CAUSE INJURY OR DEATH.

SECTION 14	TRANSPORT INFORMATION
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LAND : Not Regulated for Land Transport

SEA (IMDG): Not Regulated for Sea Transport according to IMDG-Code

Marine Pollutant: No

AIR (IATA): Not Regulated for Air Transport

SECTION 15	REGULATORY INFORMATION
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This material is considered hazardous according to the classification criteria of the Hazard Classification and Communication System for Hazardous Materials BE 2555.

Product Name: ASPHALT EMULSION CSS-1
Revision Date: 11 Jul 2018
Page 10 of 11

REGULATORY STATUS AND APPLICABLE LAWS AND REGULATIONS

Hazardous Substance Act BE2535: Not Regulated

Listed or exempt from listing/notification on the following chemical inventories (May contain substance(s) subject to notification to the EPA Active TSCA inventory prior to import to USA): TSCA

SECTION 16	OTHER INFORMATION
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N/D = Not determined, N/A = Not applicable

KEY TO THE H-CODES CONTAINED IN SECTION 3 OF THIS DOCUMENT (for information only):

- H226: Flammable liquid and vapour; Flammable Liquid, Cat 3
- H227: Combustible liquid; Flammable Liquid, Cat 4
- H304: May be fatal if swallowed and enters airways; Aspiration, Cat 1
- H315: Causes skin irritation; Skin Corr/Irritation, Cat 2
- H332: Harmful if inhaled; Acute Tox Inh, Cat 4
- H336: May cause drowsiness or dizziness; Target Organ Single, Narcotic
- H351: Suspected of causing cancer; GHS Carcinogenicity, Cat 2
- H373: May cause damage to organs through prolonged or repeated exposure; Target Organ, Repeated, Cat 2
- H401: Toxic to aquatic life; Acute Env Tox, Cat 2
- H411: Toxic to aquatic life with long lasting effects; Chronic Env Tox, Cat 2

THIS SAFETY DATA SHEET CONTAINS THE FOLLOWING REVISIONS:

- GHS Precautionary Statements - Prevention information was modified.
- Section 01: Company Contact Methods information was modified.
- Section 05: Fire Fighting Measures - Fire Fighting Instruction information was modified.
- Section 05: Hazardous Combustion Products information was modified.
- Section 06: Protective Measures information was modified.
- Section 07: Handling and Storage - Handling information was modified.
- Section 08: Exposure Limits Table information was modified.
- Section 10: Materials To Avoid information was modified.
- Section 11: Chronic Tox - Component information was deleted.
- Section 12: information was modified.
- Section 14: Marine Pollutant information was modified.

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Product Name: ASPHALT EMULSION CSS-1

Revision Date: 11 Jul 2018

Page 11 of 11

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