

Ergon Armor **Revision Number:** 4.000
Issue Date: 01/18/12

1. PRODUCT AND COMPANY IDENTIFICATION

Product name: TUFCHEM® II MEMBRANE - **ID(s):**
PART A
Product type: Asphalt Mastic mixture **MSDS Format:** United States

Company address: **Ergon Armor**
Corrosion Engineering **Contact information:**
300 Stevens Drive, Suite 310 Telephone: 601.933.3540
Lester, PA 19113 Emergency: Call CHEMTREC at 800.424.9300
Internet: www.Ergon.com

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

Physical state: Semi-solid	HMIS:
Color: Black	HEALTH: 2
Odor: Hydrocarbon	FLAMMABILITY: 2
	PHYSICAL HAZARD: 0
	Personal Protection: See MSDS section 8
	0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
	* = Chronic Health Hazard

WARNING! MAY CAUSE EYE AND SKIN IRRITATION. MAY CAUSE RESPIRATORY TRACT IRRITATION. PROLONGED EXPOSURE TO HIGH VAPOR CONCENTRATIONS CAN CAUSE CENTRAL NERVOUS SYSTEM DEPRESSION INCLUDING HEADACHE, DIZZINESS, WEAKNESS, CONFUSION, NAUSEA AND LOSS OF CONSCIOUSNESS. MAY CAUSE ALLERGIC SKIN REACTION.

Relevant routes of exposure: Inhalation and skin contact.

Potential Health Effects

Inhalation: May cause nausea, headaches and dizziness. May cause drowsiness, weakness and fatigue. May cause slight irritation to the respiratory system.

Skin contact: May cause moderate irritation. May cause itching, reddening and/or inflammation. May cause a rash. May cause sensitization.

Eye contact: Direct contact with eye may cause moderate irritation, temporary redness and/or discomfort.

Ingestion: May cause gastrointestinal irritation, nausea and vomiting.

Existing conditions aggravated by exposure: Pre-existing eye, skin, kidney and respiratory disorders may be aggravated by long term exposure.

Chronic Effects: Prolonged or repeated skin contact with asphalt may result in skin sensitivity, such as irritation, rashes, and dermatitis. Prolonged or repeated exposure to polycyclic aromatic hydrocarbons and other volatiles which are contained in trace amounts in asphalt have been shown to cause cancer or respiratory damage in animals. Prolonged or repeated exposure to mineral spirits (petroleum naphtha or Stoddard solvent) may cause defatting, drying, and irritation of the skin, dermatitis, central nervous system (CNS) effects, and adverse liver, kidney, and lung effects.

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

See Section 11 for additional toxicological information.

3. COMPOSITION / INFORMATION ON INGREDIENTS

Hazardous components	CAS-No.	%
Asphalt	8052-42-4	40-60
Petroleum Distillate (Stoddard Solvent)	8052-41-3	5-15
Polymer	Proprietary	0-30
Proprietary Oil	Proprietary	0-30
Clay	Proprietary	2-12
Limestone	1317-65-3	15-25
Fiber	Proprietary	0.5-3.0

4. FIRST AID MEASURES

Inhalation: Remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Avoid further exposure. Get medical attention if symptoms persist.

Skin contact: Clean area of contact thoroughly with soap and water. Remove contaminated clothing and shoes. If irritation, rash or other disorders develop, get medical attention immediately. Wash clothing before reuse. Thoroughly clean shoes before reuse.

Eye contact: Immediately flush with plenty of water for at least 15 minutes while holding eyelids apart. Get medical attention immediately.

Ingestion: Do NOT induce vomiting unless advised by physician. Call nearest Poison Control Center or Physician immediately. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

After first aid, get appropriate in-plant paramedic or community medical support.

Special Precautions / Procedures:

The petroleum hydrocarbons in this product are a complex mixture of paraffinic, naphthenic, and aromatic hydrocarbons. As with other petroleum products, the aromatic compounds are present in varying concentrations and structures. Some of these compounds may be those which have been shown to result in tumor formation in animals under laboratory conditions. The concentrations of aromatic compounds in this product require that the precautions outlined in this MSDS be followed to minimize personnel exposure. Provide adequate ventilation to keep vapors below allowable exposure levels. Use PPE appropriate for the task.

5. FIRE FIGHTING MEASURES

Flash point: >100°F (>38°C) - PMCC

Autoignition temperature: NE

Flammable/Explosive limits - lower: 1.0%

Flammable/Explosive limits - upper: 6.0%

Flammability Classification: Class II Combustible liquid

- Extinguishing media:** Dry chemical, foam, water fog and carbon dioxide. Use of foam or water may cause frothing. Use a water supply to cool fire-exposed containers. Do not release runoff from fire control methods to sewers or waterways.
- Special firefighting procedures:** *Fire fighters and others who may be exposed to products of combustion should wear full fire fighting turn out gear (full Bunker Gear) and self-contained breathing apparatus (pressure demand NIOSH approved or equivalent) Fire fighting equipment should be thoroughly decontaminated after use.*
- Unusual fire or explosion hazards:** This product may ignite when sufficient heat is applied. Check for combustible vapors prior to and during welding or torch cutting on vessels or tanks. It has been found that in hot storage tanks low flash substances may accumulate in vapor space. The flammability characteristics will not be detected by any flash point method. Keep ignition sources away from tank vents and prevent accumulation of pyrophoric iron sulfide.
- Hazardous combustion products:** Carbon monoxide, carbon dioxide and sulfur dioxide.

6. ACCIDENTAL RELEASE MEASURES

Use personal protection recommended in Section 8, isolate the hazard area and deny entry to unnecessary and unprotected personnel.

- Environmental precautions:** Do not allow this material to enter sewers or waterways.
- Clean-up methods:** Use appropriate protective equipment. Avoid contact with material. Remove sources of ignition immediately. Stop flow of material if safe to do so. Contain spill. Ventilate area. Isolate and confine by diking, or similar method. For large spills, dike far ahead of liquid spill for later disposal. Mix with inert absorbent material such as soil, sand or oil dry to stabilize. Place in DOT approved drums for disposal.

Notify local health and pollution control agencies as appropriate. Follow applicable OSHA regulations (29 CFR 1900.120). Subject to hazardous waste treatment, storage and disposal requirements under RCRA for characteristic of ignitability (D0001). Consult a regulatory specialist to determine appropriate state or local reporting requirements, for assistance in waste characterization and/or hazardous waste disposal and other requirements listed in pertinent environmental permits.

7. HANDLING AND STORAGE

- Handling:** Do not taste or swallow. Do not get in eyes, on skin or on clothing. Avoid breathing vapor or mist. Keep container closed. Use only with adequate ventilation. Do not smoke, weld, generate sparks or use flame near container. Do not use in confined or poorly ventilated areas. Wash thoroughly after handling. These precautions apply to empty containers and equipment such as mixers or reactors this material may come in contact with. Empty container may contain hazardous residues. Personal protective equipment must be worn during maintenance or repair of contaminated mixer, reactor or other equipment.
- Storage:** Store in a cool, dry, well ventilated place, out of direct sunlight. Avoid heat and all ignition sources.

For information on product shelf life, please review labels on container or check the Technical Data Sheet.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Employers should complete an assessment of all workplaces to determine the need for, and selection of, proper exposure controls and protective equipment for each task performed.

Hazardous components	ACGIH TLV	OSHA PEL	AIHA WEEL	NIOSH REL
Asphalt	0.5 mg/mg3 (inhalable fraction, as benzene-soluble aerosol) TWA	None	None	5 mg/mg3 Ceiling (15 min.)
Petroleum Distillate (Stoddard Solvent)	525 mg/mg3 TWA	2,900 mg/mg3	None	350 mg/mg3 TWA
Polymer	None	None	None	None
Proprietary Oil	None	None	None	None
Clay	15 mg/mg3 TWA	None	None	None
Limestone	10 mg/mg3 (respirable particulate) TWA	15 mg/mg3 TWA	None	5 mg/mg3 (respirable particulate) TWA
Fiber	3 mg/mg3 (respirable particulate); 10 mg/m3 (total particulate) TWA	5 mg/mg3 (respirable particulate); 15 mg/mg3 (total particulate) TWA	None	None

Engineering controls: Investigate engineering techniques to reduce exposures below airborne exposure limits. Provide ventilation if necessary to control exposure levels below airborne exposure limits (listed above). If practical, use local mechanical exhaust ventilation at sources of air contamination such as open process equipment. Consult ACGIH ventilation manual or NFPA Standard 91 for design of exhaust systems.

Respiratory protection: Avoid breathing vapors or mist. When airborne exposure limits are exceeded (see above), use NIOSH approved respiratory protection equipment appropriate to the material and/or its components. Consult respirator manufacturer to determine appropriate type equipment for given application. Observe respirator use limitations specified by NIOSH or the manufacturer. For emergency and other conditions where exposure limit may be significantly exceeded, use an approved full face positive-pressure, self contained breathing apparatus or positive-pressure airline with auxiliary self-contained air supply. Warning! Air purifying respirators do not protect workers in oxygen-deficient atmospheres. Respiratory protection programs must comply with 29 CFR § 1910.134.

Eye/face protection: Where there is potential for eye contact, wear chemical goggles and have eye flushing equipment available.

Skin protection: Wear appropriate chemical resistant protective clothing and chemical resistant gloves to prevent skin contact. Consult glove manufacturer to determine appropriate type glove material for given application. Rinse contaminated skin promptly. Wash contaminated clothing and clean protective equipment before reuse. Wash skin thoroughly after handling.

Other: Make emergency eye wash stations, safety/quick drench showers and washing facilities available in work area. Never eat, drink or smoke in work areas. Practice good hygiene after using this material, especially before eating, drinking or smoking.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state:	Semi-solid
Color:	Black
Odor:	Hydrocarbon
Odor threshold:	NE
pH:	NA
Vapor pressure:	NA
Boiling point/range:	300-360°F
Melting point/ range:	NA
Specific gravity:	1.0-1.05 (H2O = 1 at 4°C)
Vapor density:	4+ (Air = 1)
Flash point:	>100°F (>38°C) - PMCC
Flammable/Explosive limits - lower:	1.0%
Flammable/Explosive limits - upper:	6.0%
Autoignition temperature:	NE
Evaporation rate:	0.19 (Butyl Acetate = 1)
Solubility in water:	Negligible
Partition coefficient (n-octanol/water):	NE
VOC content:	1.23 lab/gal (Percent volatile: 18%)

10. STABILITY AND REACTIVITY

Stability:	This material is stable under normal and anticipated storage and handling conditions.
Hazardous polymerization:	Not known to occur.
Hazardous decomposition products:	Primary decomposition products are carbon monoxide, carbon dioxide and water. Combustion products may include sulfur oxides and hydrogen sulfide.
Incompatibility:	Strong oxidizing agents.
Conditions to avoid:	Do not overheat this material.

11. TOXICOLOGICAL INFORMATION

Toxicological Information

Data available for this material and/or its components are summarized below:

General Product Information:

Vapors may cause a slight smarting of the eyes or respiratory system if present in high concentrations. This is a temporary effect. Skin effects include sensitivity, such as irritation, rashes and dermatitis.

LD50/LC50:

NE

CHRONIC:

Prolonged and repeated skin contact may cause dermatitis, photosensitization, and melanosis. Evidence from animal studies suggest that asphalt left on the skin for long periods of time may result in local carcinomas, but there have been no reports of such effects on humans skin that can be attributed to asphalt alone.

Component Data:

Asphalt

LD50/LC50:

Oral LD50 Rat: >5000 mg/kg; Dermal LD50 Rabbit: >2000 mg/kg

CARCINOGENICITY (see cancer lists below):

Asphalt fumes have been studied for cancer risks. IARC has concluded: a) Bitumens are not classifiable as to their carcinogenicity to humans (Group 3) and b) Extracts of steam and air-refined bitumens are possibly carcinogenic to humans (Group 2B). IARC found that evidence for carcinogenicity from animal studies was inadequate for undiluted air-refined bitumens, limited for steam refined and cracking-residue bitumens and sufficient for extracts of steam-refined and air-refined bitumen. IARC found that human evidence for carcinogenicity of asphalt fumes was inadequate. Studies of roofers indicated an excess of cancers, however, IARC concluded that, since roofers may be exposed also to coal-tar pitches and other materials, "the excess cancer risk cannot be attributed specifically to bitumens." A 1994 published review of 20 epidemiology studies of asphalt workers and roofers agreed with IARC's findings. Trace amounts of polynuclear aromatic hydrocarbons (PHAs) may be present in some asphalts and can be released upon excessive heating. Some PHAs have been identified as having the potential to induce carcinogenic and reproductive health effects.

Petroleum Distillate (Stoddard Solvent)

LD50/LC50:

Eye Standard Draize Test Rabbit: 500 mg/24HR - Moderate reaction

EPIDEMIOLOGY:

Epidemiological studies involving petroleum refinery workers indicate persons with routine exposure to petroleum or one of its constituents may be at an increased risk to the development of benign neoplasms, digestive tract cancer and skin cancer.

Cancer Lists

Hazardous components	NTP Carcinogen	IARC Carcinogen	OSHA Carcinogen
Asphalt	Appendix A4 - Not Classifiable as a Human Carcinogen	Group 3 Not classifiable as to its carcinogenicity to humans	No
Petroleum Distillate (Stoddard Solvent)	No	No	No
Polymer	No	No	No
Proprietary Oil	No	No	No
Clay	No	No	No
Limestone	No	No	No
Fiber	No	No	No

Health Effects

Hazardous components	Health Effects / Target Organs
Asphalt	Skin Irritant (HE16) / eyes; skin; respiratory system
Petroleum Distillate (Stoddard Solvent)	Irritation - Eye, Nose, Throat, Skin---Moderate (HE15); Narcosis (HE 8); Explosive, Flammable (HE18) / Eyes, skin, respiratory system, CNS, kidneys
Polymer	NE
Proprietary Oil	NE
Clay	NE
Limestone	Nuisance Particulates (HE19) / Eyes, skin, respiratory system
Fiber	NE

12. ECOLOGICAL INFORMATION

Ecotoxicological Information

Data available for this material and/or its components are summarized below:

General Product Information:

Not available

Component Data:

Not available

13. DISPOSAL CONSIDERATIONS

Information provided is for unused product only.

Recommended method of disposal:

Incineration at an approved facility is the preferred method of disposal for this product.

Recover, reclaim or recycle when practical. Dispose of in accordance with federal, state and local regulations. Empty containers retain product residue. Note: Chemical additions to, processing of, or otherwise altering this material may render information in this document to be incomplete, inaccurate or otherwise inappropriate for waste management purposes. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

Disposal Regulatory

No EPA Waste Numbers are applicable for this product's components.

It is the responsibility of the waste generator to determine if the waste meets the definition of a hazardous waste as promulgated at 40 CFR Part 261 subpart C.

14. TRANSPORT INFORMATION

U.S. Department of Transportation Ground (49 CFR)

Information below applies to standard Ergon Armor packaging for this product:

Ground: If shipped by ground in quantities LESS than 119 gallons (450 L): Not regulated as a hazardous material.

Water: If shipped by vessel in quantities LESS than 7.9 gallons (30 L), IMDG 2.3.2.5 exception applies: Not regulated as a hazardous material. State on shipping documents: "Transport in accordance with 2.3.2.5 of the IMDG Code.

For all other shipping information, see below:

Air, Ground Bulk, and Passenger Rail

Proper shipping name: Tars, liquid

Hazard class or division: 3

Identification number: UN1999

Packing group: III

Provisions, Authorizations and Limitations

Special Provisions: (172.102): B1, B13, IB3, T1, TP3

Packaging Authorizations: a) Exceptions: 173.150, b) Non-bulk Packaging: 173.203, c) Bulk Packaging: 173.242.

Quantity Limitations: a) Passenger, Aircraft or Railcar: 60 L, b) Cargo Aircraft Only: 220 L

Vessel Stowage Requirements: a) Vessel Stowage: A, b) Other: NA

15. REGULATORY INFORMATION

United States Regulatory Information

TSCA 8 (b) Inventory Status: All components are listed or are exempt from listing on the Toxic Substances Control Act Inventory.

SARA 311/312: Acute Health Hazard
Chronic Health Hazard
Fire Hazard

Applicable component data listed below:

TSCA 12(b) Export Notification None listed
CERCLA/SARA Section 302 EHS None listed
Section 304 EHS RQ None listed
CLCRA RQ None listed
Section 313 None listed
RCRA CODE None listed
CAA 1129(r) TQ None listed

State Regulations

State Lists (Components on one or more lists)	CA	NJ	PA	RI	NY	MA	MN
Asphalt	Yes	Yes	Yes	Yes	No	Yes	Yes
Petroleum Distillate (Stoddard Solvent)	Yes	Yes	Yes	Yes	No	No	Yes
Limestone	No	Yes	Yes	Yes	No	No	Yes

California Proposition 65

This product contains the following chemicals known to the State of California to cause cancer or reproductive toxicity:

None listed

Canada Regulatory Information

	WHMIS Status	Hazard class(s)
Petroleum Distillate (Stoddard Solvent)	Disclosure (1.0%)	B3, D2B
Limestone	Disclosure (1.0%)	D2A

16. OTHER INFORMATION

Revision Information

Revision Date: 6/1/2011
Supersedes Revision Dated: 7/14/2008
Revision Number: 4.000
Revision Summary: New format

Key: NE = Not Established, NA = Not Applicable

State Lists reviewed (Sec. 15):

CA Title 8, §339. The Hazardous Substances List
NJ Right to Know Hazardous Substance List
PA Chapter 323. Hazardous Substance List
RI Rhode Island Hazardous Substance List
NY Part 597: List of Hazardous Substances
MA Massachusetts Oil and Hazardous Material List
MN 5206.400 Hazardous Substances

Prepared by: CED

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