

Material Safety Data Sheet

Material Name: FURALAC® CONCRETE HARDENER

IDs:

*** Section 1 - Chemical Product and Company Identification ***

Product Trade Name FURALAC CONCRETE HARDENER

Manufacturer Information

Ergon Armor

(601) 933-3540

Corrosion Engineering

300 Stevens Drive, Suite 310

(800) 424-9300

Lester, PA 19113

*** Section 2 - Composition / Information on Ingredients ***

CAS #	Component	Percent	OSHA
TS	Sulfonic acid mixture	40-60	Yes
1330-20-7	Xylene	1-10	Yes
108-88-3	Toluene	1-10	Yes
7664-93-9	Sulfuric Acid	1-10	Yes
7732-18-5	Water	30-55	No

The substance(s) marked with a "Y" in the OSHA column, are identified as hazardous chemicals according to the criteria of the OSHA Communication Standard (29 CFR 1910.1200)

The components of this product are all on the TSCA inventory list.

*** Section 3 - Hazards Identification ***

Emergency Overview:

Amber to brown liquid.

DANGER!

CAUSES EYE AND SKIN BURNS. MAY CAUSE BLINDNESS.

MAY CAUSE RESPIRATORY TRACT IRRITATION.

PROLONGED OR REPEATED EXPOSURE CAUSES LIVER AND KIDNEY DAMAGE.

HARMFUL IF SWALLOWED.

Potential Health Effects:

Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. Inhalation of vapors may be severely irritating to eyes and respiratory tract. Symptoms include coughing, tightness in chest, dizziness, headache, nausea and, at very high levels, may include lung edema (accumulation of fluid in the lungs). Lung edema may be delayed for several hours. Contact with liquid material may cause corrosive burns to skin and eyes and may result in blindness. Symptoms may include pain, watering of the eyes, and redness. Accidental ingestion (swallowing) may cause corrosive damage to mouth, throat and stomach, accompanied by diarrhea and vomiting.

Sulfonic Acid Mixture

Inhalation and skin contact are expected to be the primary routes of occupational exposure to this material. Based on single exposure animal tests, it is considered to be slightly toxic if swallowed, severely irritating to eyes and corrosive to skin. Vapor may cause respiratory tract irritation including coughing, tightness in chest, dizziness and, at very high levels,

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lung edema (accumulation of fluid in the lungs) which may be delayed for several hours. If swallowed, this material may cause mild to severe burns to the mouth, throat and digestive tract.

*** Section 4 - First Aid Measures ***

IF IN EYES, immediately flush with plenty of water for at least 15 minutes. Get medical attention immediately.

IF ON SKIN, immediately wash with soap and plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Destroy contaminated shoes.

IF SWALLOWED, do NOT induce vomiting. Give water to drink. Get medical attention immediately. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON.

IF INHALED, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

*** Section 5 - Fire Fighting Measures ***

Flash Point:	>212 deg F (100 deg C)	Method Used:	TCC	Flammability Classification:
Upper Flammable Limit (UFL):	9.2%	Lower Flammable Limit (LFL):	1.4%	

Fire & Explosion Hazards:

Closed containers of this material may explode when subjected to heat from surrounding fire. Cool exposed containers with water. Avoid breathing fumes from fire exposed material.

Extinguishing Media:

Use water spray, carbon dioxide, foam or dry chemical.

Fire-Fighting Instructions:

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.

*** Section 6 - Accidental Release Measures ***

Spill or Leak

Isolate hazard area and deny entry to unnecessary or unprotected personnel. Contain spilled liquid with sand or earth. Clean up spill immediately, observing precautions in the Personal Protection section of MSDS. Avoid runoff into storm sewers and ditches which lead to waterways.

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*** Section 7 - Handling and Storage ***

Handling Procedures:

Do not get in eyes, on skin or clothing. Avoid breathing vapor or mist. Keep container closed. Use only with adequate ventilation. Wash thoroughly after handling. Empty container may contain hazardous residues.

Storage Procedures:

Avoid excessive heat. Store out of direct sunlight in a cool, well-ventilated place.

*** Section 8 - Exposure Controls / Personal Protection ***

Component Exposure Limits

-Only those components with exposure limits are printed in this section.

Toluene

ACGIH: TLV-TWA 188 mg/m³, 50 ppm
ACGIH (SKIN DESIGNATOR): Y
OSHA PEL-TWA 200 ppm
OSHA PEL-CEILING 300ppm

Xylene

ACGIH: TLV-TWA 651 mg/m³, 150 ppm
ACGIH: TLV-STEL 434 mg/m³, 100 ppm
OSHA: PEL-TWA 435 mg/m³, 100 ppm

Sulfuric Acid

ACGIH: TLV-TWA 1 mg/m³
ACGIH: TLV-STEL 3 mg/m³
OSHA: PEL-TWA 1 mg/m³

-Skin contact limits designated with a "Y" above have skin contact effect. Air sampling alone is insufficient to accurately quantitate exposure. Measures to prevent significant cutaneous absorption may be required.

-ACGIH Sensitizer designator with a value of "Y" above means that exposure to this material may cause allergic reactions.

Engineering Controls:

Investigate engineering techniques to reduce exposures below airborne exposure limits. Provide ventilation if necessary to control exposure levels below airborne exposure limits (see 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.

PERSONAL PROTECTIVE EQUIPMENT

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As prescribed in the OSHA Standard for Personal Protective Equipment (29 CFR 1910.132), employers must perform a Hazard Assessment of all workplaces to determine the need for, and selection of, proper protective equipment for each task performed.

Eyes/Face Protective Equipment:

Where there is potential for eye contact, wear chemical goggles and have eye flushing equipment available.

Skin Protection:

Neoprene or Polyvinyl chloride gloves should be worn when handling this material. Wear face shield and chemical resistant clothing such as a rubber apron when splashing may occur. Wash contaminated clothing and clean protective equipment before reuse. Rinse contaminated skin promptly. Wash skin thoroughly after handling.

Respiratory Protection:

Avoid breathing vapor 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. Respiratory protection programs must comply with 29 CFR § 1910.134.

* * * Section 9 - Physical & Chemical Properties * * *

Physical State:	Liquid	Appearance:	Amber to brown liquid
Odor:	Amine	Vapor Pressure:	NE
Vapor Density:	>1	Boiling Point:	>212 deg F
Melting Point:	N/E	Specific Gravity:	1.3 @ 25/25 Deg C
pH:	<1	Viscosity:	NE
VOC:	1-10%	Solubility Water:	Soluble

* * * Section 10 - Chemical Stability & Reactivity Information * * *

Chemical Stability:

This material is chemically stable under normal and anticipated storage and handling conditions.

Incompatibility:

Avoid contact with strong acids, alkalis, oxidizers, copper, copper alloys, chlorinated compounds and epoxy resins (in uncontrolled conditions).

Decomposition Products:

Oxides of carbon and nitrogen.

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Hazardous Polymerization:

Hazardous polymerization is not known to occur.

* * * Section 11 - Toxicological Information * * *

Acute Toxicity:

A: General Product Information

No information available for the product.

B: Component Analysis –

Data on this material and/or its components are summarized below.

Xylene

Single exposure (acute) studies indicate that this material is slightly toxic to rats if swallowed (LD50 4,300mg/kg), no more than slightly toxic to rabbits if absorbed through skin (LD50 >4,400 mg/kg), practically non-toxic to rats if inhaled (4-hr LC50 6,700 ppm), and severely irritating to rabbit skin. Contact with vapor is moderately irritating to eyes while direct contact with the liquid may produce corneal burns. Repeated exposure of humans and guinea pigs in controlled skin contact studies produced severe skin irritation, but no skin allergy. Prolonged or repeated overexposure by inhalation has caused mild and reversible liver and kidney effects in humans. This material did not increase the incidence of tumors and produced no evidence of toxicity in long-term oral studies of rats conducted by the National Toxicology Program (NTP). Birth defects were noted in the offspring of rabbits, rats and mice after oral administration and inhalation of this material during pregnancy, but only at dosages which produced significant adverse effects in the mother. No effects were noted on the ability of male or female rats to reproduce following inhalation of this material. No genetic changes were observed in standard tests using bacteria, animal or human cells and animals.

Toluene

Single exposure (acute) studies indicate that this material is slightly toxic to practically non-toxic to rats if swallowed (LD50 2,600-7,530 mg/kg), practically non-toxic to rabbits if absorbed through skin (LD50 14,000 mg/kg) or rats if inhaled (4-hr LC50 8,000 ppm), moderately irritating to rabbits eyes, and moderately to slightly irritating to rabbit skin. This material has been administered to several animal species by various routes of exposure to investigate its potential toxicity. Repeated oral administration produced liver and kidney changes, digestive tract irritation and blood changes (rat). Repeated skin application produced lung irritation and damage (rat), blood changes (rat, mouse), minor liver changes (mouse, rat, rabbit), decreased resistance to lung infection (mouse), and various brain effects including subtle behavioral changes and hearing loss (mouse, rat). In long-term inhalation studies with rats and mice, no evidence for carcinogenic effects were reported. In rats, toxic effects were limited to the nasal cavity. Mice receiving skin applications showed no treatment related tumor growth or significant tumor promoting activity.

Birth defects were reported in rats exposed to this material by oral administration at levels which produced no adverse effects in the mother. Birth defects were reported in rats exposed by prolonged inhalation, but only at levels which produced adverse effects on the mothers. However, a similar study reported no birth defects in rats and mice exposed by inhalation at levels which produced adverse effects and mortality in the mothers and toxic effects in the offspring. No treatment related effects on survival or reproductive parameters were observed when two generations of mice were exposed by inhalation. The weight of the evidence suggests that this material does not produce genetic changes in

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standard tests using bacteria, animal cells or animals, although several questionable studies using animals have produced both positive and negative results.

Sulfonic acid mixture

Single exposure (acute) studies indicate that this material is slightly toxic if swallowed (rat LD50 1,410-2,480 mg/kg), severely irritating to rabbit eyes and corrosive to rabbit skin.

Sulfuric Acid

Single exposure (acute) studies indicate that this material is slightly toxic if swallowed (rat LD50 2,140 mg/kg), moderately toxic if inhaled (rat 4-hr LC50 0.5 mg/l) and corrosive to rabbit eyes and skin. Studies in humans have shown this material to be irritating to the upper respiratory tract and lungs with coughing, sore throat, chest pain and reduced pulmonary function in asthmatic subjects. No birth defects were noted in the offspring of mice or rabbits given this material by inhalation during pregnancy. The International Agency for Research on Cancer (IARC) has classified strong inorganic acid mists containing sulfuric acid as a known human carcinogen (Group 1). Genetic changes were observed in tests using animal cells, but not in bacteria. Both positive and negative responses have been reported in tests using yeast.

Component Carcinogenicity

None of this product's components are listed by ACGIH, IARC, OSHA, NIOSH, or NTP.

Chronic Toxicity

No information available for the product.

Epidemiology:

No information available for the product.

Neurotoxicity:

No information available for the product.

Mutagenicity:

No information available for the product.

Teratogenicity:

No information available for the product.

***** Section 12 - Ecological Information *****

Ecotoxicity:

A: General Product Information

No information available for the product.

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B: Component Analysis - Ecotoxicity - Aquatic Toxicity

Data on this material and/or its components are summarized below.

Xylene

This material is practically non-toxic to *Daphnia magna* (24-hr IC50 165 mg/l) and slightly toxic to fathead minnow (96-hr LC50 27 mg/l), rainbow trout (96-hr LC50 13.5 mg/l) and bluegill sunfish (96-hr LC50 12.1-15 mg/l).

Toluene

This material is moderately to slightly toxic to fathead minnow (96-hr LC50 26-63 mg/l), sheepshead minnow (96-hour LC50 13 mg/l), bluegill (96-hour LC50 24 mg/l), guppies (96-hour LC50 59 mg/l) and bay shrimp (96-hour LC50 3.7 mg/l). It is practically non-toxic to algae (96-hour EC50 >433 mg/l). The 28-day no effect level for sheepshead minnow was 3.2-7.7 mg/l, while the 32-day no effect level for fathead minnow was 4-6 mg/l.

Sulfuric Acid

This material is slightly toxic to mosquito fish and bluegill sunfish (LC50 42-49 mg/l), shrimp (LC50 60-90 mg/l) and practically non-toxic to flounder (LC50 100-330 mg/l).

Environmental Fate:

Data on this material and/or its components are summarized below.

Xylene

This material is degraded in standard biodegradability tests. The octanol/ water partition coefficients (log Pow) for the individual isomers of xylene ranged from 2.77 to 3.2, with low bioconcentration factors. Volatilization is the dominant transport mechanism for this material.

Toluene

This material is readily degraded by activated sludge and by bacteria in estuarine and marine environments. It is biodegraded by a variety of soil microorganisms using this material (up to 0.1%) as the sole carbon source. Biodegradability ranged from 63% to 86% after up to 20 days using domestic filtered waste water effluent. This material is not expected to bioconcentrate in fish or other aquatic organisms. The log octanol/water partition coefficient (log KOW) is 2.79.

* * * Section 13 - Disposal Considerations * * *

US EPA Waste Numbers & Descriptions:

A: General Product Information

Recover, reclaim or recycle when practical.

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Disposal via incineration is recommended. Appropriate pretreatment and disposal in an authorized landfill is acceptable. In all cases, dispose of material in accordance with all applicable federal, state, and local laws and regulations. Consult appropriate regulatory officials or your attorney for information on such disposal.

Note: Chemical additions to, processing of, or otherwise altering this material may make this waste management information incomplete, inaccurate, or otherwise inappropriate. Furthermore, state and local waste disposal requirements may be more restrictive or otherwise different from federal laws and regulations.

B: Component Waste Numbers

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

* * * Section 14 - Transportation Information * * *

US DOT Information

DOT Name: Aryl Sulfonic Acids, Liquid
DOT Technical Name: (Toluenesulfonic acid, Xylenesulfonic acid)
DOT Hazard Class: 8
UN Number: 2586
DOT Packing Group: PG III

* * * Section 15 - Regulatory Information * * *

US Federal Regulations

A: General Product Information

This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).

B: Component Analysis

SARA Title III, Section 313

This product does contain chemical(s) which are defined as toxic chemicals under and subject to the reporting requirements of, Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 986 and 40 CFR Part 372. See Section 2

Sulfuric Acid
Xylene
Toluene

This product does contain chemical(s) which are defined as toxic chemicals under and subject to the reporting requirements of SARA Section 302 (40 CFR 355 Appendix A or CERCLA (40 CFR 302.4).

Sulfuric Acid

SARA 311/312: Acute: Y Chronic: Y Fire: N Pressure: N Reactive: N

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CERCLA Reportable Quantities (40 CFR 302.4):

Sulfuric Acid
Xylene
Toluene

CERCLA RQ

1000 LBS
100 LBS
1000 LBS

SARA TPQ

1000 LBS

State Regulations

A: General Product Information

No additional information available.

B: Component Analysis – State

The following components appear on one or more of the following state hazardous substances lists:

California Proposition 65 – Developmental Toxin

This product does contain the following chemical(s), as indicated below, currently on the California List of Developmental Toxins.

Toluene

Massachusetts Right to Know

This product does contain the following chemical(s), as indicated below, currently on the Massachusetts Right to Know Substance List.

Sulfuric Acid
Xylene
Toluene
Sulfonic Acid Mixture

New Jersey Right to Know

This product does contain the following chemical(s), as indicated below, currently on the New Jersey Right-to-Know Substances List.

Sulfuric Acid
Xylene
Toluene
Sulfonic Acid Mixture

Pennsylvania Right to Know

This product does contain the following chemical(s), as indicated below, currently on the Pennsylvania Hazardous Substance List.

Sulfuric Acid
Xylene
Toluene
Sulfonic Acid Mixture

Other Regulations

A: General Product Information

All components are on the U.S. EPA TSCA Inventory List.

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B: Component Analysis – Inventory Component Analysis - Inventory

CAS #	Component	TSCA	DSL	EINECS
	Sulfonic acid mixture	Yes	Yes	Yes
108-88-3	Toluene	Yes	Yes	Yes
1330-20-7	Xylene	Yes	Yes	Yes
7664-93-9	Sulfuric Acid	Yes	Yes	Yes

C: Component Analysis - WHMIS IDL

The following components are identified under the Canadian Hazardous Products Act Ingredient Disclosure List:

Component	CAS #	Disclosure / Classifications
Sulfonic acid mixture		1%
Toluene	108-88-3	0.1% / B2, D2A, D2B
Xylene	1330-20-7	0.1% / B2, D2A, D2B
Sulfuric acid	7664-93-9	1% / D1A, E

* * * Section 16 - Other Information * * *

Key/Legend

EPA = Environmental Protection Agency; TSCA = Toxic Substance Control Act; ACGIH = American Conference of Governmental Industrial Hygienists; IARC = International Agency for Research on Cancer; NIOSH = National Institute for Occupational Safety and Health; NTP = National Toxicology Program; OSHA = Occupational Safety and Health Administration; NFPA = National Fire Protection Association; HMIS = Hazardous Material Identification System; CERCLA = Comprehensive Environmental Response, Compensation and Liability Act; SARA = Superfund Amendments and Reauthorization Act

The information presented herein is believed to be factual as it has been derived from the works and opinions of persons believed to be qualified experts; however, nothing contained in this information is to be taken as a warranty or representation for which Ergon Armor bears legal responsibility. The user should review any recommendations in the specific context of the intended use to determine whether they are appropriate.