

**SAFETY DATA SHEET**  
**EDS-Activator™**



Revision date: 2020-06-11  
Version 1.0

**1. PRODUCT AND COMPANY IDENTIFICATION**

**Product Identifier**

Product Name: EDS-Activator™

Synonyms: Electron Donor Solution – Activator, Methanolic solution

Product Form: Solution

**Recommended use of the chemical and restrictions on use**

Recommended Use: Remediation of contaminated groundwater and soils. Chemical for synthesis.

Restrictions on Use: Use as recommended by the label

**Details of the supplier and of the safety data sheet**

Supplier                      Tersus Environmental, LLC  
   1116 Colonial Club Rd  
   Wake Forest, NC 27587  
   Phone: +1-919-453-5577  
   Email: [info@tersusenv.com](mailto:info@tersusenv.com)

Contact Person              David F. Alden  
   Phone: +1-919-453-5577 x2002  
   Email: [david.alden@tersusenv.com](mailto:david.alden@tersusenv.com)

**Emergency telephone number**

For leak, fire, spill or accident emergencies, call:

- +1-919-453-5577 (Tersus Office Hours, 8:00 AM to 5:00 PM Eastern)
- +1-800-424-9300 (Chemtrec 24 Hour Service – Emergency Only)
- +1-703-527-3887 (Chemtrec Outside United States 24 Hour Service – Emergency Only)
- +1-919-638-7892 Gary M. Birk (Outside office hours)

**2. HAZARD IDENTIFICATION**

**Relevant identified uses of the substance or mixture**

**GHS Classification**

- Flammable liquid, Category 3, H226
  - Acute toxicity, Category 3, Oral, H301
  - Acute toxicity, Category 3, Inhalation, H331
  - Acute toxicity, Category 3, Dermal, H311
  - Skin corrosion, Category 1B, H314
  - Serious eye damage, Category 1, H318
  - Specific target organ systemic toxicity - single exposure, Category 1, Eyes, H370
- For the full text of the H-Statements mentioned in this Section, see Section 16.

**GHS-Labeling***Hazard pictograms***Signal Word**

Danger

**Hazard Statements**

H226	Flammable liquid and vapor.
H301 + H311 + H331	Toxic if swallowed, in contact with skin or if inhaled.
H314	Causes severe skin burns and eye damage.
H370	Causes damage to organs (Eyes).

**Precautionary Statements**

P210	Keep away from heat/sparks/open flames/hot surfaces. No smoking.
P233	Keep container tightly closed.
P240	Ground/bond container and receiving equipment.
P241	Use explosion-proof electrical/ ventilating/ lighting/ equipment.
P242	Use only non-sparking tools.
P243	Take precautionary measures against static discharge.
P260	Do not breathe dust/ fume/ gas/ mist/ vapors/ spray.
P264	Wash skin thoroughly after handling.
P270	Do not eat, drink, or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear protective gloves/ protective clothing/ eye protection/ face protection.
P301 + P310	IF SWALLOWED: Immediately call a POISON CENTER/doctor.
P301 + P330 + P331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P303 + P361 + P353	IF ON SKIN (or hair): Remove/ Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304 + P340	IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.
P305 + P351 + P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a POISON CENTER/doctor.
P322	Specific measures (see supplemental first aid instructions on this label).
P361	Remove/Take off immediately all contaminated clothing.
P363	Wash contaminated clothing before reuse.
P370 + P378	In case of fire: Use dry sand, dry chemical or alcohol-

P403 + P235  
P405  
P501

resistant foam for extinction. P403 + P233 Store in a well-ventilated place. Keep container tightly closed.  
Store in a well-ventilated place. Keep cool.  
Store locked up.  
Dispose of contents/ container to an approved waste disposal plant.

**Other hazards**  
Water Reactive

### 3. COMPOSITION/INFORMATION ON INGREDIENTS

**Chemical Formula** Mixture

#### Hazardous components

Chemical Name	Concentration (%)	CAS Number
Methanol	Exact percentages are being withheld as a trade secret.	67-56-1
Potassium methylate	Exact percentages are being withheld as a trade secret.	865-33-8

In accordance with paragraph (i) of §1910.1200, the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret.

Synonyms are provided in Section 1.

Occupational exposure limits, if available, are listed in Section 8.

### 4. FIRST AID MEASURES

General Information	First aider needs to protect himself. Remove affected person from source of contamination.
Eye Contact	After eye contact: rinse out with plenty of water. Immediately call in ophthalmologist. Remove contact lenses.
Skin Contact	In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower. Call a physician immediately.
Inhalation	After inhalation: fresh air. Immediately call in physician. If breathing stops: immediately apply artificial respiration, if necessary, also oxygen. Get prompt medical attention.
Ingestion	After swallowing: fresh air. Make victim drink ethanol (e.g. 1 drinking glass of a 40% alcoholic beverage). Call a doctor immediately (mention methanol ingestion). Only in exceptional cases, if no medical care is available within one hour, induce vomiting (only in fully conscious persons) and make victim drink ethanol again (approx. 0.3 ml of a 40% alcoholic beverage/kg body weight/hour). Risk of perforation! Do not attempt to neutralize.

Never give anything by mouth to an unconscious person.

Most important symptoms and effects, both acute and delayed	Irritation and corrosion, Cough, Shortness of breath, Dizziness, narcosis, agitation, spasms, inebriation, Nausea, Vomiting, Headache, Impairment of vision, Coma Risk of blindness! Irritation and corrosion, Cough, Shortness of breath Risk of blindness!
Indication of any immediate medical attention and special treatment needed	No information available.

## 5. FIRE-FIGHTING MEASURES

<b>Suitable Extinguishing Media</b>	Suitable extinguishing media Carbon dioxide (CO <sub>2</sub> ), Dry powder
<b>Specific Hazards Arising from the chemical or mixture</b>	Unsuitable extinguishing media Water, Foam Combustible. May not get in touch with: Water Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air at elevated temperatures. Development of hazardous combustion gases or vapors possible in the event of fire.
<b>Special Fire Fighting Procedures</b>	<b>Special protective equipment for fire-fighters</b> Stay in danger area only with self-contained breathing apparatus. Prevent skin contact by keeping a safe distance or by wearing suitable protective clothing. <b>Further information</b> Remove container from danger zone and cool with water. Prevent fire extinguishing water from contaminating surface water or the ground water system.

## 6. ACCIDENTAL RELEASE MEASURES

<b>Personal Precautions</b>	Advice for non-emergency personnel: Do not breathe vapors, aerosols. Avoid substance contact. Ensure adequate ventilation. Keep away from heat and sources of ignition. Evacuate the danger area, observe emergency procedures, consult an expert.
<b>Environmental Precautions</b>	Advice for emergency responders: Protective equipment see section 8. Do not let product enter drains. Risk of explosion.
<b>Methods for Containment and Clean Up</b>	Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up carefully with liquid-absorbent material. Dispose of properly. Clean up affected area.

## 7. HANDLING AND STORAGE

<b>Precautions for safe handling</b>	Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols.  Keep workplace dry. Do not allow product to encounter water.
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Observe label precautions.

Work under hood. Do not inhale substance/mixture. Avoid generation of vapors/aerosols. Keep workplace dry. Do not allow product to encounter water.

**Advice on protection against fire and explosion**

Keep away from open flames, hot surfaces, and sources of ignition. Take precautionary measures against static discharge.

**Hygiene measures**

Handle in accordance with good industrial hygiene and safety procedures. Use good personal hygiene practices.

**Conditions for safe storage, including any incompatibilities**

Keep container tightly closed in a dry and well-ventilated place. Keep away from heat and sources of ignition. Keep locked up or in an area accessible only to qualified or authorized persons.

Store below +30°C (+86°F).

## 8. EXPOSURE CONTROL / PERSONAL PROTECTION

**Control parameters**

Exposure guidelines, ingredients with workplace control parameters.

Exposure limit(s) <i>Ingredients</i> <b>Basis</b> <i>methanol 67-56-1</i>	<b>Value</b>	<b>Threshold limits</b>	<b>Remarks</b>
<b>ACGIH</b>	Time Weighted Average (TWA):	200 ppm	
	Short Term Exposure Limit (STEL): Skin designation:	200 ppm	Can be absorbed through the skin.
<b>NIOSH/GUIDE</b>	Recommended exposure limit (REL): Skin designation:	200 ppm 260 mg/m <sup>3</sup>	Can be absorbed through the skin.
<b>OSHA_TRANS</b>	PEL:	200 ppm 260 mg/m <sup>3</sup>	
<b>Z1A</b>	Time Weighted Average (TWA): Skin designation (Final Rule Limit applies): Short Term Exposure Limit (STEL):	200 ppm 260 mg/m <sup>3</sup> 250 ppm 325 mg/m <sup>3</sup>	Can be absorbed through the skin.

**Engineering measures**

Technical measures and appropriate working operations should be given priority over the use of personal protective equipment.

**Individual protection measures**

Protective clothing should be selected specifically for the workplace, depending on concentration and quantity of the hazardous substances handled. The chemical resistance of the protective equipment should be inquired at the respective supplier.

*Hygiene measures*

Immediately change contaminated clothing. Apply skin- protective barrier cream.  
Wash hands and face after working with substance.

*Eye/face protection*

Tightly fitting safety goggles

*Hand protection*

full contact:

Glove material:	butyl-rubber
Glove thickness:	0.7 mm
Break through time:	> 480 min

splash contact:

Glove material:	Viton®
Glove thickness:	0.70 mm
Break through time:	> 120 min

**Exposure Control****Protective equipment****Appropriate engineering controls**

Provide adequate general and local exhaust ventilation. Observe any occupational exposure limits for the product or ingredients. Do not allow uncontrolled discharge of product into the environment.

**Eye/face protection**

The following protection should be worn: Chemical splash goggles.

**Respiratory protection**

Required when vapors/aerosols are generated.  
Recommended Filter type: Filter AX (EN 371)

**Hand protection**

Butyl-rubber, Viton®

**Other skin and body protection**

Wear appropriate clothing to prevent any possibility of skin contact.  
Flame retardant antistatic protective clothing.

**Hygiene measures**

Wash promptly if skin becomes contaminated. Wash hands at the end of each work shift and before eating, smoking, and using the toilet. When using do not eat, drink, or smoke.

<b>9. PHYSICAL AND CHEMICAL PROPERTIES</b>
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**Information on basic physical and chemical properties**

Physical state

liquid

Color	colorless
Odor	methanolic
Odor Threshold	No information available.
pH	ca. 11
Melting point	< -4 °F (< -20 °C)
Boiling point/boiling range	200.3 °F (93.5 °C) at 1,013 hPa
Flash point	85.5 °F (29.7 °C)
Evaporation rate	No information available.
Flammability (solid, gas)	No information available.
Lower explosion limit	5.5 %(V) Methanol
Upper explosion limit	36.5 %(V) Methanol
Vapor pressure	180 hPa at 122 °F (50 °C) 36 hPa at 68 °F (20 °C)
Relative vapor density	No information available.
Density	0.99 g/cm <sup>3</sup> at 68 °F (20 °C)
Relative density	No information available.
Water solubility	at 68 °F (20 °C) (decomposition)
Partition coefficient: n octanol/water	log Pow: -0.74 (20 °C) Methanol Bioaccumulation is not expected.
Autoignition temperature	No information available.
Decomposition temperature	No information available.
Viscosity, dynamic	18 mPa.s at 68 °F (20 °C)
Explosive properties	Not classified as explosive.
Oxidizing properties	none
Ignition temperature	779 °F (415 °C) DIN 51794

## 10. STABILITY AND REACTIVITY

<b>Reactivity</b>	Hydrolyzes Vapor/air-mixtures are explosive at intense warming.
<b>Chemical stability</b>	Sensitive to moisture
<b>Possibility of hazardous reactions</b>	Violent reactions possible with oxidizing agents, acids, water  Possible decomposition products in case of hydrolysis are corrosive base, methanol
<b>Conditions to avoid</b>	Heating
<b>Incompatible materials</b>	No further relevant information available.
<b>Hazardous decomposition products</b>	No further relevant information available.

## 11. TOXICOLOGICAL INFORMATION

**Likely route of exposure**  
Inhalation, Eye contact, Skin contact

**Target Organs**  
Eyes  
Skin

**Respiratory system**

Central nervous system gastrointestinal tract

**Acute oral toxicity**

Symptoms: Nausea, Vomiting, If ingested, severe burns of the mouth and throat, as well as a danger of perforation of the esophagus and the stomach.

Acute toxicity estimate: 142.86 mg/kg Calculation method

**Acute inhalation toxicity**

Symptoms: mucosal irritations, Cough, Shortness of breath,

Possible damages: damage of respiratory tract

**Absorption**

Acute toxicity estimate: 4.29 mg/l; 4 h; vapor Calculation method

Symptoms: mucosal irritations, Cough, Shortness of breath

Possible damages: damage of respiratory tract

**Acute dermal toxicity**

Acute toxicity estimate: 428.57 mg/kg Calculation method

**Skin irritation**

Mixture causes burns.

**Eye irritation**

Mixture causes serious eye damage. Risk of blindness!

**Specific target organ systemic toxicity - single exposure**

Causes damage to organs.

Target Organs: Eyes

**Specific target organ systemic toxicity - repeated exposure**

The substance or mixture is not classified as specific target organ toxicant, repeated exposure.

**Aspiration hazard**

Regarding the available data the classification criteria are not fulfilled.

**Carcinogenicity**

IARC No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

ACGIH No ingredient of this product present at levels greater than or equal to 0.1% is identified as a carcinogen or potential carcinogen by ACGIH.

**Further information**

After absorption:

Headache, Dizziness, inebriation, Impairment of vision

Systemic effects:

Acidosis, drop in blood pressure, agitation, spasms, narcosis, Coma, Irreversible damage of the optical nerve.

Symptoms may be delayed.



Handle in accordance with good industrial hygiene and safety practice.  
Other dangerous properties cannot be excluded.

### **Ingredients**

#### Methanol

##### *Acute oral toxicity*

LDLO human: 143 mg/kg (RTECS)

Acute toxicity estimate: 100.1 mg/kg Expert judgment

##### *Acute inhalation toxicity*

LC50 Rat: 131.25 mg/l; 4 h; vapor (ECHA)

##### *Acute dermal toxicity*

LD50 Rabbit: ca. 17,100 mg/kg (External MSDS)

Acute toxicity estimate: 300.1 mg/kg Expert judgment

##### *Skin irritation*

Rabbit

Result: No skin irritation (ECHA)

##### *Eye irritation*

Rabbit

Result: No eye irritation (ECHA)

##### *Sensitization*

Sensitization test: Guinea pig Result: negative

Method: OECD Test Guideline 406

##### *Repeated dose toxicity*

Rat

male and female

Inhalation

vapor 28 d

daily

NOAEL: 6.66 mg/l

OECD Test Guideline 412

##### *Subacute toxicity*

Rat

male and female

Inhalation

365 d

daily

NOAEL: 0.13 mg/l

LOAEL: 1.3 mg/l

OECD Test Guideline 453

##### *Germ cell mutagenicity*

Genotoxicity in vivo

Micronucleus test

Mouse

Result: negative  
Method: OECD Test Guideline 474

*Genotoxicity in vitro*

Ames test

Salmonella typhimurium

Result: negative

Method: OECD Test Guideline 471

In vitro mammalian cell gene mutation test Chinese hamster lung cells

Result: negative

Method: OECD Test Guideline 476

**Potassium methylate**

No information available.

## 12. ECOLOGICAL INFORMATION

**Ecotoxicity**

No information available.

**Persistence and degradability**

No information available.

**Bioaccumulative potential**

*Partition coefficient: n-octanol/water*

log Pow: -0.74 (20 °C)

Methanol Bioaccumulation is not expected.

**Mobility in soil**

No information available.

*Additional ecological information*

Harmful effect due to pH shift. Forms toxic and corrosive mixtures with water even if diluted. Discharge into the environment must be avoided.

**Ingredients methanol**

*Toxicity to fish*

Flow-through test LC50 *Lepomis macrochirus* (Bluegill sunfish): 15,400 mg/l; 96 h US-EPA

*Toxicity to daphnia and other aquatic invertebrates*

Static test EC50 *Daphnia magna* (Water flea): > 10,000 mg/l; 48 h DIN 38412

*Toxicity to algae*

Static test EC50 *Pseudokirchneriella subcapitata* (green algae): ca. 22,000 mg/l; 96 h OECD Test Guideline 201

*Toxicity to bacteria*

Static test IC50 activated sludge: > 1,000 mg/l; 3 h  
Analytical monitoring: yes OECD Test Guideline 209

*Toxicity to fish (Chronic toxicity)*

NOEC *Oryzias latipes* (Orange-red killifish): 7,900 mg/l; 200 h (External MSDS)

*Biodegradability*

99 %; 30 d

OECD Test Guideline 301D Readily biodegradable.

*Biochemical Oxygen Demand (BOD)*

600 - 1,120 mg/g (5 d)

(IUCLID)

*Chemical Oxygen Demand (COD)*

1,420 mg/g

(IUCLID)

*Theoretical oxygen demand (ThOD)*

1,500 mg/g

(Lit.)

*Ratio BOD/ThBOD*

BOD5 76 %

Closed Bottle test

*Partition coefficient: n-octanol/water*

log Pow: -0.77

(experimental)

(Lit.) Bioaccumulation is not expected.

Substance does not meet the criteria for PBT or vPvB according to Regulation (EC) No 1907/2006, Annex XIII.

*Stability in water*

2.2 year

reaction with hydroxyl radicals (IUCLID)

**Ingredients potassium methylate**

No information available.

### 13. DISPOSAL CONSIDERATIONS

**Waste Disposal Methods**

The information presented only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations. Disposal should be in accordance with applicable regional, national and local laws and regulations.

### 14. TRANSPORTATION INFORMATION

**U.S. (D.O.T.) Land transport**

Proper Shipping Name:

Corrosive Liquid, Flammable, N.O.S. (Cont. Potassium Methylate, Methanol).

Hazard Class:

8 (3)

UN/NA:

UN 2920

Packing group: II  
Environmentally hazardous --

**Air transport (IATA)**

Proper Shipping Name: Corrosive Liquid, Flammable, N.O.S. (Cont. Potassium Methylate, Methanol).  
Hazard Class: 8 (3)  
UN/NA: UN 2920  
Packing group: II  
Environmentally hazardous --  
Special precautions for user no

**Sea transport (IMDG)**

Proper Shipping Name: Corrosive Liquid, Flammable, N.O.S. (Cont. Potassium Methylate, Methanol).  
Hazard Class: 8 (3)  
UN/NA: UN 2920  
Packing group: II  
Environmentally hazardous --  
Special precautions for user no  
EmS F-E-S-C  
Segregation Group 0018 Alkalis

**15. REGULATORY INFORMATION****United States of America****SARA 313**

The following components are subject to reporting levels established by SARA Title III, Section 313:  
Ingredients

Methanol	67-56-1	70 %
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**SARA 302**

No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

**Clean Water Act**

This product does not contain any Hazardous Substances listed under the U.S. CleanWater Act, Section 311, Table 116.4A.

This product does not contain any Hazardous Chemicals listed under the U.S. CleanWater Act, Section 311, Table 117.3.

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

**DEA List I**

Not listed

**DEA List II**

Not listed

**US State Regulations****Massachusetts Right to Know**

Ingredients methanol

**Pennsylvania Right to Know**

Ingredients methanol

**New Jersey Right to Know**

Ingredients methanol

**California Prop 65 Components****WARNING:** This product contains a chemical known in the State of California to cause birth defects or other reproductive harm.

Ingredients methanol

**Notification status****TSCA:** All components of the product are listed in the TSCA-inventory.**DSL:** This product contains one or several components listed in the Canadian NDSL.**16. OTHER INFORMATION****Training advice**

Provide adequate information, instruction, and training for operators.

**Labeling**

Hazard pictograms

**Signal Word**

Danger

**Hazard Statements**

H226 Flammable liquid and vapor.

H301 + H311 + H331 Toxic if swallowed, in contact with skin or if inhaled. H314 Causes severe skin burns and eye damage.

H370 Causes damage to organs (Eyes).

EUH014 Reacts violently with water.

**Precautionary Statements**

Prevention

P210 Keep away from heat.

P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.

Response

P301 + P330 + P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

P302 + P352 IF ON SKIN: Wash with plenty of soap and water.

P304 + P340 IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing.

P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P308 + P310 IF exposed or concerned: immediately call a POISON CENTER or doctor/ physician.

**Full text of H-Statements referred to under sections 2 and 3.**

H226 Flammable liquid and vapor.

H301 Toxic if swallowed.

- H311 Toxic in contact with skin.
- H314 Causes severe skin burns and eye damage.
- H318 Causes serious eye damage.
- H331 Toxic if inhaled.
- H370 Causes damage to organs.

Key or legend to abbreviations and acronyms used in the safety data sheet Used abbreviations and acronyms can be looked up at [www.wikipedia.org](http://www.wikipedia.org).

The information contained in this Safety Data Sheet, as of the issue date, is believed to be true and correct. However, the accuracy or completeness of this information and any recommendations or suggestions are made without warranty or guarantee. Since the conditions of use are beyond the control of our company, it is the responsibility of the user to determine the conditions of safe use of this product. The information in this sheet does not represent analytical specifications; for this information contact Tersus Environmental.

**Disclaimer:** This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. All recommendations for the use of our products, whether given by us, orally or to be implied from data or lab tests results by us, are based on the current state of our knowledge at the time those recommendations are made. When additional information is obtained, these recommendations may be updated. They may also be influenced by circumstances outside our control. Notwithstanding, such recommendation the user is responsible that the product as supplied by us is suitable to the process or purpose he intends to use it. The user of the product is solely responsible for compliance with all laws and regulations applying to the use of this product. Since we cannot control the application, use or processing of the product, we do not accept responsibility. Therefore, the user should assure that the intended use of the product will not infringe in any party's intellectual property right.



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**End of Safety Data Sheet**