

**Safety Data Sheet**  
 acc. to OSHA HCS

Page 1/11

Printing date 06/08/2018  
 Reviewed on 06/08/2018  
 Version number: 4

## 1 Identification

- **Product identifier**
- **Trade name:** Davidson - Solution
- **Article number:** A3200
- **Application of the substance / the mixture** Laboratory chemical
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**  
 AppliChem GmbH  
 Ottoweg 4  
 D-64291 Darmstadt
- **Information department:** Dept. Compliance
- **Emergency telephone number:** +49(0)6151 93570 (Inside normal business hours)

Tel.: +49 (0)6151 93570  
 Fax.: +49 (0)6151 935711  
 msds@applichem.com

## 2 Hazard(s) identification

- **Classification of the substance or mixture**  
 Skin Corr. 1A H314 Causes severe skin burns and eye damage.  
 Eye Dam. 1 H318 Causes serious eye damage.  
 Skin Sens. 1 H317 May cause an allergic skin reaction.  
 Muta. 2 H341 Suspected of causing genetic defects.  
 Carc. 1A H350 May cause cancer.

- **Label elements**
- **GHS label elements**  
 The product is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS05 GHS07 GHS08

- **Signal word** Danger
- **Hazard-determining components of labeling:**  
 ethanol  
 Acetic acid  
 formaldehyde
- **Hazard statements**  
 H314 Causes severe skin burns and eye damage.  
 H317 May cause an allergic skin reaction.  
 H341 Suspected of causing genetic defects.  
 H350 May cause cancer.
- **Precautionary statements**  
 P201 Obtain special instructions before use.  
 P202 Do not handle until all safety precautions have been read and understood.  
 P260 Do not breathe dusts or mists.  
 P264 Wash thoroughly after handling.  
 P272 Contaminated work clothing must not be allowed out of the workplace.  
 P280 Wear protective gloves/protective clothing/eye protection/face protection.

(Contd. on page 2)

**Trade name: Davidson - Solution**

(Contd. of page 1)

P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.  
P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.  
P304+P340 IF INHALED: Remove person to fresh air and keep 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.  
P308+P313 IF exposed or concerned: Get medical advice/attention.  
P321 Specific treatment (see on this label).  
P333+P313 If skin irritation or rash occurs: Get medical advice/attention.  
P363 Wash contaminated clothing before reuse.  
P405 Store locked up.  
P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

- **Classification system:**
- **NFPA ratings (scale 0 - 4)**



- **HMIS-ratings (scale 0 - 4)**



- **Other hazards**
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.

### 3 Composition/information on ingredients

- **Chemical characterization: Mixtures**
- **Description:** aqueous solution

• **Dangerous components:**

64-17-5	ethanol	>30-≤40%
64-19-7	Acetic acid	>10-≤15%
50-00-0	formaldehyde	>1-≤2.5%

### 4 First-aid measures

- **Description of first aid measures**
- **General information:** Involve doctor immediately.
- **After inhalation:**  
Supply fresh air and to be sure call for a doctor.  
In case of unconsciousness place patient stably in side position for transportation.
- **After skin contact:**  
Call a doctor immediately.  
Immediately wash with water and soap and rinse thoroughly.  
Immediately remove any clothing soiled by the product.
- **After eye contact:**  
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
- **After swallowing:**  
make victim drink water (maximum of 2 drinking glasses)  
Call a doctor immediately.

(Contd. on page 3)

Trade name: Davidson - Solution

(Contd. of page 2)

- **Information for doctor:**
- **Most important symptoms and effects, both acute and delayed**  
No further relevant information available.
- **Indication of any immediate medical attention and special treatment needed**  
No further relevant information available.

## 5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**  
In case of fire, the following can be released:  
CO, CO2  
Non-combustible.
- **Advice for firefighters**
- **Protective equipment:** Wear self-contained respiratory protective device.
- **Additional information**  
Dispose of fire debris and contaminated fire fighting water in accordance with official regulations.  
Contain escaping vapours with water.

## 6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**  
Avoid substance contact.
- **Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**  
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).  
Dispose contaminated material as waste according to item 13.  
Ensure adequate ventilation.  
Clean up affected area.
- **Reference to other sections**  
See Section 7 for information on safe handling.  
See Section 8 for information on personal protection equipment.  
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**

### • PAC-1:

64-17-5	ethanol	1,800 ppm
64-19-7	Acetic acid	5 ppm
50-00-0	formaldehyde	0.90 ppm

### • PAC-2:

64-17-5	ethanol	3300* ppm
64-19-7	Acetic acid	35 ppm
50-00-0	formaldehyde	14 ppm

### • PAC-3:

64-17-5	ethanol	15000* ppm
64-19-7	Acetic acid	250 ppm
50-00-0	formaldehyde	56 ppm

## 7 Handling and storage

- **Handling:**
- **Precautions for safe handling**  
Ensure good ventilation/exhaustion at the workplace.  
Open and handle receptacle with care.

(Contd. on page 4)

**Trade name: Davidson - Solution**

(Contd. of page 3)

- Prevent formation of aerosols.
- **Information about protection against explosions and fires:**  
Keep respiratory protective device available.  
The product is not flammable.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:**  
Keep receptacle tightly sealed.  
Open receptacle only under localized extractor facilities.  
Store under lock and key and with access restricted to technical experts or their assistants only.
- **Recommended storage temperature:** < +15 °C
- **Storage class:** 6.1 D
- **Specific end use(s)** No further relevant information available.

## 8 Exposure controls/personal protection

- **Additional information about design of technical systems:** No further data; see item 7.
- **Control parameters**

### • Components with limit values that require monitoring at the workplace:

#### 64-17-5 ethanol

PEL	Long-term value: 1900 mg/m <sup>3</sup> , 1000 ppm
REL	Long-term value: 1900 mg/m <sup>3</sup> , 1000 ppm
TLV	Short-term value: 1880 mg/m <sup>3</sup> , 1000 ppm

#### 64-19-7 Acetic acid

PEL	Long-term value: 25 mg/m <sup>3</sup> , 10 ppm
REL	Short-term value: 37 mg/m <sup>3</sup> , 15 ppm Long-term value: 25 mg/m <sup>3</sup> , 10 ppm
TLV	Short-term value: 37 mg/m <sup>3</sup> , 15 ppm Long-term value: 25 mg/m <sup>3</sup> , 10 ppm

#### 50-00-0 formaldehyde

PEL	Short-term value: 2 ppm Long-term value: 0.75 ppm see 29 CFR 1910.1048(c)
REL	Long-term value: 0.016 ppm Ceiling limit value: 0.1* ppm *15-min; See Pocket Guide App. A
TLV	Short-term value: 0.37 mg/m <sup>3</sup> , 0.3 ppm Long-term value: 0.12 mg/m <sup>3</sup> , 0.1 ppm DSEN; RSEN

- **Additional information:** The lists that were valid during the creation were used as basis.
- **Exposure controls**
- **Personal protective equipment:**
- **General protective and hygienic measures:**  
Keep away from foodstuffs, beverages and feed.  
Immediately remove all soiled and contaminated clothing.  
Wash hands before breaks and at the end of work.  
Store protective clothing separately.  
Avoid contact with the eyes and skin.
- **Breathing equipment:**  
Filter ABEK  
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

(Contd. on page 5)

**Trade name: Davidson - Solution**

(Contd. of page 4)

• **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

• **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

• **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

• **For the permanent contact gloves made of the following materials are suitable:**

Nitrile rubber, NBR

Recommended thickness of the material:  $\geq 0.11$  mm

Value for the permeation: Level  $\geq 480$  min

• **As protection from splashes gloves made of the following materials are suitable:**

Nitrile rubber, NBR

Recommended thickness of the material:  $\geq 0.11$  mm

Value for the permeation: Level  $\geq 480$  min

• **Eye protection:**



Tightly sealed goggles

• **Body protection:**

Protective clothing should be selected specifically for the working place, depending on concentration and quantity of the hazardous substances handled.

## 9 Physical and chemical properties

• **Information on basic physical and chemical properties**

• **General Information**

• **Appearance:**

Form: Fluid

Color: Colorless

• **Odor:** Characteristic

• **Odor threshold:** Not determined.

• **pH-value:** Not determined.

• **Change in condition**

Melting point/Melting range: Undetermined.

Boiling point/Boiling range:  $>34$  °C ( $>93.2$  °F)

• **Flash point:** Not applicable.

• **Flammability (solid, gaseous):** Not applicable.

• **Ignition temperature:** 463 °C (865.4 °F)

• **Decomposition temperature:** Not determined.

• **Auto igniting:** Product is not selfigniting.

(Contd. on page 6)

Trade name: Davidson - Solution

(Contd. of page 5)

- **Danger of explosion:** Product does not present an explosion hazard.
- **Explosion limits:**
  - Lower:** 2.5 Vol %
  - Upper:** 16 Vol %
- **Vapor pressure at 20 °C (68 °F):** 57.3 hPa (43 mm Hg)
- **Density at 20 °C (68 °F):** 0.931 g/cm<sup>3</sup> (7.769 lbs/gal)
- **Relative density** Not determined.
- **Vapor density** Not determined.
- **Evaporation rate** Not determined.
- **Solubility in / Miscibility with Water:** Fully miscible.
- **Partition coefficient (n-octanol/water):** Not determined.
- **Viscosity:**
  - Dynamic:** Not determined.
  - Kinematic:** Not determined.
- **Solvent content:**
  - Organic solvents:** 46.5 %
  - Water:** 53.5 %
  - VOC content:** 46.50 %
- **Solids content:** 0.0 %
- **Other information** No further relevant information available.

## 10 Stability and reactivity

- **Reactivity** No dangerous reactions known.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** heating
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No dangerous reactions known.
- **Hazardous decomposition products:** In the event of fire: See chapter 5

## 11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **LD/LC50 values that are relevant for classification:**

Components	Type	Value	Species
<b>64-19-7 Acetic acid</b>			
Oral	LD50	3,310 mg/kg (rat)	
Dermal	LD50	1,130 mg/kg (rabbit)	
Inhalative	LC50/4 h	5,620 mg/l (mouse)	
<b>50-00-0 formaldehyde</b>			
Oral	LD50	100 mg/kg (rat)	
Dermal	LD50	270 mg/kg (rabbit)	

- **Primary irritant effect:**
- **on the skin:** Irritant to skin and mucous membranes.
- **on the eye:** Irritating effect.
- **Sensitization:** Sensitization possible through skin contact.

(Contd. on page 7)

**Trade name: Davidson - Solution**

(Contd. of page 6)

• **Additional toxicological information:**

The product shows the following dangers according to internally approved calculation methods for preparations:

Irritant  
Carcinogenic.

• **Carcinogenic categories**

• **IARC (International Agency for Research on Cancer)**

64-17-5	ethanol	1
50-00-0	formaldehyde	1

• **NTP (National Toxicology Program)**

50-00-0	formaldehyde	K
---------	--------------	---

• **OSHA-Ca (Occupational Safety & Health Administration)**

50-00-0	formaldehyde	
---------	--------------	--

## 12 Ecological information

• **Toxicity**

• **Aquatic toxicity:**

Type of test	Effective concentration	Method	Assessment
<b>64-19-7 Acetic acid</b>			
EC50/72 h	>300.8 mg/l	(Algae)	
EC50/24 h	>300.8 mg/l	(daphnia magna) (OECD 202)	
LC50/96 h	>300.8 mg/l	(fish) (OECD 203)	
<b>50-00-0 formaldehyde</b>			
EC50/72 h	4.89 mg/l	(Algae)	
EC50/48 h	5.8 mg/l	(daphnia magna)	
LC50/96 h	6.7 mg/l	(fish)	

• **Persistence and degradability** No further relevant information available.

• **Behavior in environmental systems:**

• **Bioaccumulative potential** No further relevant information available.

• **Mobility in soil** No further relevant information available.

• **Additional ecological information:**

• **General notes:**

Water hazard class 3 (Self-assessment): extremely hazardous for water  
Danger to drinking water if even extremely small quantities leak into the ground.

• **Results of PBT and vPvB assessment**

• **PBT:** Not applicable.

• **vPvB:** Not applicable.

• **Other adverse effects** No further relevant information available.

## 13 Disposal considerations

• **Waste treatment methods**

• **Recommendation:**

Chemicals must be disposed of in compliance with the respective national regulations.  
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.

• **Uncleaned packagings:**

• **Recommendation:**

Disposal must be made according to official regulations.  
Packagings that cannot be cleansed are to be disposed of in the same manner as the product.




(Contd. on page 8)

Trade name: Davidson - Solution

(Contd. of page 7)

- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

## 14 Transport information

· <b>UN-Number</b>	UN3265
· <b>DOT, ADR, IMDG, IATA</b>	
· <b>UN proper shipping name</b>	Corrosive liquid, acidic, organic, n.o.s. (Acetic acid, glacial)
· <b>DOT, ADR</b>	
· <b>IMDG, IATA</b>	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (ACETIC ACID, GLACIAL)
· <b>Transport hazard class(es)</b>	
· <b>DOT</b>	
	
· <b>Class</b>	8 Corrosive substances
· <b>Label</b>	8
· <b>ADR</b>	
	
· <b>Class</b>	8 (C3) Corrosive substances
· <b>Label</b>	8
· <b>IMDG, IATA</b>	
	
· <b>Class</b>	8 Corrosive substances
· <b>Label</b>	8
· <b>Packing group</b>	
· <b>DOT, ADR, IMDG, IATA</b>	III
· <b>Environmental hazards:</b>	
· <b>Marine pollutant:</b>	No
· <b>Special precautions for user</b>	Warning: Corrosive substances
· <b>Danger code (Kemler):</b>	80
· <b>EMS Number:</b>	F-A,S-B
· <b>Segregation groups</b>	Acids
· <b>Stowage Category</b>	A
· <b>Stowage Code</b>	SW2 Clear of living quarters.
· <b>Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code</b>	Not applicable.

(Contd. on page 9)

US



Trade name: Davidson - Solution

(Contd. of page 8)

• **Transport/Additional information:**

• **ADR**

• **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

• **IMDG**

• **Limited quantities (LQ)**

5L

• **Excepted quantities (EQ)**

Code: E1

Maximum net quantity per inner packaging: 30 ml

Maximum net quantity per outer packaging: 1000 ml

• **UN "Model Regulation":**

UN 3265 CORROSIVE LIQUID, ACIDIC, ORGANIC,  
N.O.S. (ACETIC ACID, GLACIAL), 8, III

## 15 Regulatory information

• **Safety, health and environmental regulations/legislation specific for the substance or mixture**  
• **Sara**

• **Section 355 (extremely hazardous substances):**

50-00-0 formaldehyde

• **Section 313 (Specific toxic chemical listings):**

50-00-0 formaldehyde

• **TSCA (Toxic Substances Control Act):**

All ingredients are listed.

• **Proposition 65**

• **Chemicals known to cause cancer:**

50-00-0 formaldehyde

• **Chemicals known to cause reproductive toxicity for females:**

None of the ingredients is listed.

• **Chemicals known to cause reproductive toxicity for males:**

None of the ingredients is listed.

• **Chemicals known to cause developmental toxicity:**

64-17-5 ethanol

• **Cancerogenity categories**

• **EPA (Environmental Protection Agency)**

50-00-0 formaldehyde

B1

• **TLV (Threshold Limit Value established by ACGIH)**

64-17-5 ethanol

A3

50-00-0 formaldehyde

A2

• **NIOSH-Ca (National Institute for Occupational Safety and Health)**

50-00-0 formaldehyde

• **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

• **Hazard pictograms**



GHS05 GHS07 GHS08

(Contd. on page 10)

**Trade name: Davidson - Solution**

(Contd. of page 9)

- **Signal word** Danger
- **Hazard-determining components of labeling:**
  - ethanol
  - Acetic acid
  - formaldehyde
- **Hazard statements**
  - H314 Causes severe skin burns and eye damage.
  - H317 May cause an allergic skin reaction.
  - H341 Suspected of causing genetic defects.
  - H350 May cause cancer.
- **Precautionary statements**
  - P201 Obtain special instructions before use.
  - P202 Do not handle until all safety precautions have been read and understood.
  - P260 Do not breathe dusts or mists.
  - P264 Wash thoroughly after handling.
  - P272 Contaminated work clothing must not be allowed out of the workplace.
  - P280 Wear protective gloves/protective clothing/eye protection/face protection.
  - P301+P330+P331 If swallowed: Rinse mouth. Do NOT induce vomiting.
  - P303+P361+P353 If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
  - P304+P340 IF INHALED: Remove person to fresh air and keep 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.
  - P308+P313 IF exposed or concerned: Get medical advice/attention.
  - P321 Specific treatment (see on this label).
  - P333+P313 If skin irritation or rash occurs: Get medical advice/attention.
  - P363 Wash contaminated clothing before reuse.
  - P405 Store locked up.
  - P501 Dispose of contents/container in accordance with local/regional/national/international regulations.
- **National regulations:**
- **Information about limitation of use:**

Workers are not allowed to be exposed to the hazardous carcinogenic materials contained in this preparation. Exceptions can be made by the authorities in certain cases.
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

## 16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Dept. Compliance
- **Date of preparation / last revision** 06/08/2018 / 3
- **Abbreviations and acronyms:**
  - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
  - IMDG: International Maritime Code for Dangerous Goods
  - DOT: US Department of Transportation
  - IATA: International Air Transport Association
  - ACGIH: American Conference of Governmental Industrial Hygienists
  - EINECS: European Inventory of Existing Commercial Chemical Substances
  - ELINCS: European List of Notified Chemical Substances
  - CAS: Chemical Abstracts Service (division of the American Chemical Society)
  - NFPA: National Fire Protection Association (USA)
  - HMIS: Hazardous Materials Identification System (USA)
  - VOC: Volatile Organic Compounds (USA, EU)
  - LC50: Lethal concentration, 50 percent
  - LD50: Lethal dose, 50 percent
  - PBT: Persistent, Bioaccumulative and Toxic
  - vPvB: very Persistent and very Bioaccumulative
  - NIOSH: National Institute for Occupational Safety

(Contd. on page 11)

**Trade name: Davidson - Solution**

(Contd. of page 10)

OSHA: Occupational Safety & Health  
TLV: Threshold Limit Value  
PEL: Permissible Exposure Limit  
REL: Recommended Exposure Limit  
Skin Corr. 1A: Skin corrosion/irritation – Category 1A  
Eye Dam. 1: Serious eye damage/eye irritation – Category 1  
Skin Sens. 1: Skin sensitisation – Category 1  
Muta. 2: Germ cell mutagenicity – Category 2  
Carc. 1A: Carcinogenicity – Category 1A

· **\* Data compared to the previous version altered.**

US