



SAFETY DATA SHEET In Accordance with ISO/DIS 11014

Review Date 01/30/2018

Revision Date 01/30/2018

1 Identification of the Substance/Mixture and Company

Product Name: Karnovsky's Fixative

SDS Code: SSFXKAR

Product Description: Tissue Fixative

Manufacturer/Supplier:

American MasterTech
1330 Thurman Street
Lodi, CA 95240
USA
(800) 860-4073

European Authorized Representative:

Emergo Europe
Prinsessegracht 20
2514 AP The Hague,
The Netherlands

Emergency Telephone Number: Infotrac (800) 535-5053 (24 hours) - International (011) 352-323-3500

2 Hazards Identification

Classification of the substance or mixture



GHS08 Health hazard

Resp. Sens. 1 H334 May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Carc. 1A H350 May cause cancer.



GHS07

Skin Irrit. 2 H315 Causes skin irritation.

Eye Irrit. 2A H319 Causes serious eye irritation.

Skin Sens. 1 H317 May cause an allergic skin reaction.

Aquatic Acute 3 H402 Harmful to aquatic life.

Label elements

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

Hazard pictograms



GHS08

Signal word Danger

Hazard-determining components of labeling:

glutaral
formaldehyde

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Hazard statements

Causes skin irritation.

Causes serious eye irritation.

May cause allergy or asthma symptoms or breathing difficulties if inhaled.

May cause an allergic skin reaction.

May cause cancer.

Harmful to aquatic life.

Precautionary statements

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

Avoid breathing dust/fume/gas/mist/vapors/spray

Wash thoroughly after handling.

Contaminated work clothing must not be allowed out of the workplace.

Avoid release to the environment.

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

[In case of inadequate ventilation] wear respiratory protection.

If on skin: Wash with plenty of water.

If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.

If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

IF exposed or concerned: Get medical advice/attention.

Specific treatment (see on this label).

If skin irritation or rash occurs: Get medical advice/attention.

If eye irritation persists: Get medical advice/attention.

If experiencing respiratory symptoms: Call a poison center/doctor.

Take off contaminated clothing and wash it before reuse.

Wash contaminated clothing before reuse.

Store locked up.

Dispose of contents/container in accordance with local/regional/national/international regulations.

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

Health = 3

Fire = 0

Reactivity = 0

HMIS-ratings (scale 0 - 4)

Health = 3

Fire = 0

Reactivity = 0

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

3 Composition

Chemical characterization: Mixtures**Description:** Mixture of the substances listed below with nonhazardous additions.**Dangerous components:**

124-65-2	sodium dimethylarsinate	≥0.1-≤2.5%
111-30-8	glutaral	≥1-≤2%

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50-00-0 formaldehyde

≥0.2-≤1%

4 First Aid Measures

Description of first aid measures
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: Immediately wash with water and soap and rinse thoroughly.

After eye contact: Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.

After swallowing: If symptoms persist consult doctor.

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 Firefighting Measures

Extinguishing media
Suitable extinguishing agents: Use fire fighting measures that suit the environment.

Special hazards arising from the substance or mixture: No further relevant information available.

Advice for firefighters
Protective equipment: No special measures required.

6 Accidental Release Measures

Personal precautions, protective equipment and emergency procedures: Not required.

Environmental precautions:

Dilute with plenty of water.

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.

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:

124-65-2	sodium dimethylarsinate	3.2 mg/m ³
111-30-8	glutaral	0.2 ppm
50-00-0	formaldehyde	0.90 ppm
10043-52-4	calcium chloride	12 mg/m ³

PAC-2:

124-65-2	sodium dimethylarsinate	86 mg/m ³
111-30-8	glutaral	1 ppm

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50-00-0	formaldehyde	14 ppm
10043-52-4	calcium chloride	130 mg/m ³
PAC-3:		
124-65-2	sodium dimethylarsinate	510 mg/m ³
111-30-8	glutaral	5 ppm
50-00-0	formaldehyde	56 ppm
10043-52-4	calcium chloride	790 mg/m ³

7 Handling and Storage

Handling:
Precautions for safe handling: Ensure good ventilation/exhaustion at the workplace.

Information about protection against explosions and fires: No special measures required.

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.

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:

The following constituents are the only constituents of the product which have a PEL, TLV or other recommended exposure limit.

At this time, the remaining constituent has no known exposure limits.

111-30-8 glutaral	
REL	Ceiling limit value: 0.8 mg/m ³ , 0.2 ppm See Pocket Guide App. C
TLV	Ceiling limit value: 0.2 mg/m ³ , 0.05 ppm DSEN;RSEN ;activated or inactivated
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 ³ , 0.3 ppm Long-term value: 0.12 mg/m ³ , 0.1 ppm DSEN; RSEN

Additional information: The lists that were valid during the creation were used as basis.

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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:

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.

Protection of hands:

Protective gloves

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

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

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.

Eye protection: Tightly sealed goggles

9 Physical and Chemical Properties

Information on basic physical and chemical properties

General Information

Appearance

Form:	Liquid
Color:	Colorless
Odor:	Mild
Odor threshold:	Not determined.

pH-value: Not determined.

Change in condition

Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	100 °C (212 °F)

Flash point: Not applicable.

Flammability (solid, gaseous): Not applicable.

Decomposition temperature: Not determined.

Auto igniting: Product is not selfigniting.

Danger of explosion: Product does not present an explosion hazard.

Explosion limits:

Lower:	Not determined.
Upper:	Not determined.

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Vapor pressure at 20 °C (68 °F):	23 hPa (17.3 mm Hg)
Density:	Not determined.
Relative density:	Not determined.
Vapour density:	Not determined.
Evaporation rate:	Not determined.
Solubility in / Miscibility with Water:	Fully miscible.
Partition coefficient (n-octanol/water):	Not determined.
Dynamic:	Not determined.
Kinematic:	Not determined.
Other information:	No further relevant information available.

10 Stability and Reactivity

Reactivity: No further relevant information available.

Chemical stability:

Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.

Possibility of hazardous reactions: No dangerous reactions known.

Conditions to avoid: No further relevant information available.

Incompatible materials: No further relevant information available.

Hazardous decomposition products: No dangerous decomposition products known.

11 Toxicology Information

Information on toxicological effects

Acute toxicity:

LD/LC50 values that are relevant for classification:

111-30-8 glutaral

Oral	LD50	134 mg/kg (rat)
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Dermal	LD50	2,560 mg/kg (rabbit)
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50-00-0 formaldehyde

Oral	LD50	>200 mg/kg (rat)
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Primary irritant effect:

On the skin: Irritant to skin and mucous membranes.

On the eye: Irritating effect.

Sensitization:

Sensitization possible through inhalation.

Sensitization possible through skin contact.

Additional toxicological information:

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

Harmful

Irritant

Carcinogenic categories

IARC (International Agency for Research on Cancer)

50-00-0	formaldehyde	1
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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:** No further relevant information available.**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 2 (Self-assessment): hazardous for water

Do not allow product to reach ground water, water course or sewage system.

Danger to drinking water if even 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

Uncleaned packagings:**Recommendation:** Disposal must be made according to official regulations.**Recommended cleansing agent:** Water, if necessary with cleansing agents.

14 Transport Information

UN-Number DOT, ADR, ADN, IMDG, IATA	Not applicable
UN proper shipping name DOT, ADR, ADN, IMDG, IATA	Not applicable
Transport hazard class(es) DOT, ADR, ADN, IMDG, IATA Class	Not applicable
Packing group DOT, ADR, IMDG, IATA	Not applicable
Environmental hazards Marine pollutant:	No
Special precautions for user:	Not applicable.

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Stowage Category	A
Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code:	Not applicable.
UN "Model Regulation":	Not applicable

15 Regulatory Information

Safety, health and environmental regulations/legislation specific for the substance or mixture
SARA

Section 355 (extremely hazardous substances):

124-65-2	sodium dimethylarsinate
50-00-0	formaldehyde

Section 313 (Specific toxic chemical listings):

50-00-0	formaldehyde
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TSCA (Toxic Substances Control Act):

All ingredients are listed.

TSCA new (21st Century Act) (Substances not listed)

124-65-2	sodium dimethylarsinate
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Proposition 65

Chemicals known to cause cancer:

50-00-0	formaldehyde
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Chemicals known to cause reproductive toxicity for females:

None of the ingredients are listed.

Chemicals known to cause reproductive toxicity for males:

None of the ingredients are listed.

Chemicals known to cause developmental toxicity:

None of the ingredients are listed.

Carcinogenic categories

EPA (Environmental Protection Agency)

50-00-0	formaldehyde	B1
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TLV (Threshold Limit Value established by ACGIH)

111-30-8	glutaral	A4
50-00-0	formaldehyde	A2

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

50-00-0	formaldehyde
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Hazard pictograms

GHS08

Signal word Danger**Hazard-determining components of labeling:**glutaral
formaldehyde**Hazard statements**

Causes skin irritation.
 Causes serious eye irritation.
 May cause allergy or asthma symptoms or breathing difficulties if inhaled.
 May cause an allergic skin reaction.
 May cause cancer.
 Harmful to aquatic life.

Precautionary statements

Obtain special instructions before use.
 Do not handle until all safety precautions have been read and understood.
 Avoid breathing dust/fume/gas/mist/vapors/spray
 Wash thoroughly after handling.
 Contaminated work clothing must not be allowed out of the workplace.
 Avoid release to the environment.
 Wear protective gloves/protective clothing/eye protection/face protection.
 [In case of inadequate ventilation] wear respiratory protection.
 If on skin: Wash with plenty of water.
 If inhaled: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
 If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
 IF exposed or concerned: Get medical advice/attention.
 Specific treatment (see on this label).
 If skin irritation or rash occurs: Get medical advice/attention.
 If eye irritation persists: Get medical advice/attention.
 If experiencing respiratory symptoms: Call a poison center/doctor.
 Take off contaminated clothing and wash it before reuse.
 Wash contaminated clothing before reuse.
 Store locked up.
 Dispose of contents/container in accordance with local/regional/national/international regulations.

National regulations:**Additional classification according to Decree on Hazardous Materials:**

Carcinogenic hazardous material group III (dangerous).

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 contained herein is believed to be accurate but is not warranted to be so. Data and calculations are based on information furnished by the manufacturer of the product and manufacturers of the components of the product. Users

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are advised to confirm in advance of need that information is current, applicable and suited to the circumstances of use. Vendor assumes no responsibility for injury to vendee or third persons proximately caused by the material if reasonable safety procedures are not adhered to as stipulated in the data sheet. Furthermore, vendor assumes no responsibility for injury caused by abnormal use of the material even if reasonable safety procedures are followed. Any questions regarding this product should be directed to the manufacturer of the product as described in Section 1.

Department issuing SDS: Regulatory Department

Contact: Phone (800) 860-4073

Date of preparation / last revision 01/30/2018 / -

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)

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

OSHA: Occupational Safety & Health

TLV: Threshold Limit Value

PEL: Permissible Exposure Limit

REL: Recommended Exposure Limit

Skin Irrit. 2: Skin corrosion/irritation – Category 2

Eye Irrit. 2A: Serious eye damage/eye irritation – Category 2A

Resp. Sens. 1: Respiratory sensitisation – Category 1

Skin Sens. 1: Skin sensitisation – Category 1

Carc. 1A: Carcinogenicity – Category 1A

Aquatic Acute 3: Hazardous to the aquatic environment - acute aquatic hazard – Category 3

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