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### **FSG-Green Solution Bio**

#### SECTION 1: Identification of the substance/mixture and of the company/ undertaking

#### **1.1. Product identifier** Trade name/designation:

FSG-Green Solution Bio

#### Article No.:

GS20000

A3DS-W18K-C00W-KHWE

# **1.2.** Relevant identified uses of the substance or mixture and uses advised against Use of the substance/mixture:

Cleaner

#### **Relevant identified uses:**

Sector of uses [SU]

- SU 6a: Manufacture of wood and wood products
  - Product Categories [PC]
- PC 16: Heat transfer fluids
- PC 24: Lubricants, greases, release products
- PC 35: Washing and cleaning products

#### \* 1.3. Details of the supplier of the safety data sheet

#### Manufacturer:

#### FSG Schäfer GmbH

Boschstraße 14 48703 Stadtlohn GERMANY **Telephone:** +49 (0) 25 63 - 93 95 - 0 **Telefax:** +49 (0) 25 63 - 93 95 - 25 **E-mail:** verkauf@fsg-schaefer.de **Website:** www.fsg-schaefer.de

E-mail (competent person): sdb@fsg-schaefer.de

Only for information: National Poisons Information Service (Birmingham Unit): 844 892 0111

#### \* 1.4. Emergency telephone number

24h: Emergency Action: In the event of a medical enquiry involving this product, please contact your doctor or local hospital accident and emergencydepartment., Office FSG: +49 (0) 2563 93950. (Only available during office hours.)

### SECTION 2: Hazards identification

#### 2.1. Classification of the substance or mixture

#### Classification according to Regulation (EC) No 1272/2008 [CLP]

Hazard classes and hazard categories	Hazard statements	Classification procedure	
flammable liquids (Flam. Liq. 2)	H225: Highly flammable liquid and vapour.		

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### **FSG-Green Solution Bio**

#### 2.2. Label elements Labelling according to Regulation (EC) No. 1272/2008 [CLP] Hazard pictograms:



Signal word: Danger

Hazard statements for physical hazards Highly flammable liquid and vapour.

H225

#### Supplemental hazard information: none

Precautionary statements Prevention					
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smokir					
P240 Ground and bond container and receiving equipment.					
P242	Use non-sparking tools.				
P243 Take action to prevent static discharges.					

#### Precautionary statements Response

P370 + P378 In case of fire: Use Foam to extinguish.

#### Precautionary statements Disposal

P501 Dispose of contents/container to Disposal methods.

#### Special rules for supplemental label elements for certain mixtures:

25,4 % percent of the mixture consists of ingredient(s) of unknown acute toxicity (oral).

92,3 % percent of the mixture consists of ingredient(s) of unknown acute toxicity (dermal).

32,2 % percent of the mixture consists of ingredient(s) of unknown acute toxicity (inhalative).

25,4 % percent of the mixture consists of components of unknown hazards to the aquatic environment.

#### 2.3. Other hazards

No data available

### **SECTION 3: Composition/information on ingredients**

#### 3.2. Mixtures \*

#### **Description:**

Mixture of following listed substances with nonhazardous additions.

#### Hazardous ingredients / Hazardous impurities / Stabilisers:

Product identifiers	Substance name Classification according to Regulation (EC) No 1272/2008 [CLP]	Concentration
CAS No.: 64-17-5 EC No.: 200-578-6 Index No.: 603-002-00-5	ethanol Flam. Liq. 2 (H225) Danger	38 - < 65 weight-%
CAS No.: 78-93-3 EC No.: 201-159-0 Index No.: 606-002-00-3	butanone Eye Irrit. 2 (H319), Flam. Liq. 2 (H225), STOT SE 3 (H336)	1 - < 3 weight-%
CAS No.: 107-21-1 EC No.: 203-473-3 Index No.: 603-027-00-1 REACH No.: 01-2119456816-28	Ethandiol Acute Tox. 4 (H302) Warning	1 - ≤ 2 weight-%

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Product identifiers	Substance name Classification according to Regulation (EC) No 1272/2008 [CLP]	Concentration
		1 - ≤ 2 weight-%
CAS No.: 34590-94-8 EC No.: 252-104-2	(2-methoxymethylethoxy)propanol Substance with a community workplace exposure limit.	0 - ≤ 0.324999 weight-%
CAS No.: 103-09-3 EC No.: 203-079-1	2-ethylhexyl acetate Skin Irrit. 2 (H315) Warning	0 - < 0.04 weight-%

#### **SECTION 4: First aid measures**

#### \* 4.1. Description of first aid measures

#### **General information:**

In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove victim out of the danger area. Remove contaminated, saturated clothing. If unconscious but breathing normally, place in recovery position and seek medical advice. Do not leave affected person unattended.

#### Following inhalation:

Headache, Provide fresh air. In case of respiratory tract irritation, consult a physician.

#### In case of skin contact:

After contact with skin, wash immediately with plenty of water and soap.

#### After eye contact:

In case of contact with eyes flush immediately with plenty of flowing water for 10 to 15 minutes holding eyelids apart and consult an ophthalmologist. Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/ attention.

#### Following ingestion:

Rinse mouth. Get medical advice/attention if you feel unwell. Let 1 glass of water be drunken in little sips (dilution effect).

#### **4.2. Most important symptoms and effects, both acute and delayed** No data available

#### **4.3. Indication of any immediate medical attention and special treatment needed** Treat symptomatically.

#### **SECTION 5: Firefighting measures**

#### \* 5.1. Extinguishing media

#### Suitable extinguishing media:

Water spray jet, alcohol resistant foam, Extinguishing powder, Carbon dioxide (CO2). Fire extinguishers Fire class: B.

#### Unsuitable extinguishing media:

Full water jet.

#### 5.2. Special hazards arising from the substance or mixture

Highly flammable, Combustible.

#### Hazardous combustion products:

In case of fire may be liberated: Carbon dioxide (CO2), Carbon monoxide, Pyrolysis products, toxic, carbon black.

In case of fire: Gases/vapours, toxic.

#### \* 5.3. Advice for firefighters

Cool endangered containers by spraying with water.

Wear a self-contained breathing apparatus and chemical protective clothing.

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#### 5.4. Additional information

Collect contaminated fire extinguishing water separately. Do not allow entering drains or surface water.

#### **SECTION 6: Accidental release measures**

#### 6.1. Personal precautions, protective equipment and emergency procedures

#### 6.1.1. For non-emergency personnel

#### **Personal precautions:**

Special danger of slipping by leaking/spilling product. Remove persons to safety.

#### **Protective equipment:**

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

#### 6.1.2. For emergency responders

#### Personal protection equipment:

Personal protection equipment: see section 8.

#### 6.2. Environmental precautions

Discharge into the environment must be avoided. Do not allow run-off from fire-fighting to enter drains or water courses.

Do not allow to enter into surface water or drains.

#### 6.3. Methods and material for containment and cleaning up

#### For containment:

Soak up inert absorbent and dispose as waste requiring special attention.

Absorb with liquid-binding material (sand, diatomaceous earth, acid- or universal binding agents).

#### For cleaning up:

Clean with detergents. Avoid solvent cleaners. Water (with cleaning agent).

#### **6.4. Reference to other sections**

Safe handling: see section 7. Personal protection equipment: see section 8. Disposal: see section 13.

#### 6.5. Additional information

Use appropriate container to avoid environmental contamination.

#### **SECTION 7: Handling and storage**

#### 7.1. Precautions for safe handling

#### **Protective measures**

#### Advices on safe handling:

Do not breathe gas/fumes/vapour/spray. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground/bond container and receiving equipment. Use explosion-proof machinery, apparatus, ventilation facilities, tools etc. Wear personal protection equipment (refer to section 8).

#### Fire prevent measures:

Take precautionary measures against static discharge. Keep away from sources of ignition - No smoking.

#### Advices on general occupational hygiene

Wash hands before breaks and after work. After cleaning apply high-fat content skin care cream. When using do not eat, drink, smoke, sniff. Avoid contact with skin, eyes and clothes.

#### 7.2. Conditions for safe storage, including any incompatibilities

#### Technical measures and storage conditions:

Keep container tightly closed in a cool, well-ventilated place.

#### Packaging materials:

Material, solvent-resistant, Keep/Store only in original container.

#### Requirements for storage rooms and vessels:

Soils have to conform to the "Guidelines for avoidance of ignition hazards due to electrostatic charges (TRGS 727)".

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#### Hints on storage assembly:

Keep away from combustible material. Do not store together with:

Combustible substances of acute toxicity, category 1 and 2 / very toxic substances

Non-combustible substances of acute toxicity, category 1 and 2 / very toxic substances Combustible substances of acute toxicity, category 3 / hazardous substances that are toxic or produce chronic effects

Non-combustible substances of acute toxicity, category 3 / hazardous substances that are toxic or produce chronic effects.

Storage class (TRGS 510, Germany): 3 - Flammable liquids

Further information on storage conditions:

Protect from sunlight. Store in a well-ventilated place.

#### 7.3. Specific end use(s)

#### **Recommendation:**

Detergents and cleaning products (including solvent based),

Commercial use of general purpose surface cleaners. Refrigerants, Lubricants, greases, release products. Industrial sector specific solutions:

Stripper, irritant, containing solvents with skin absorptive substances.

GISCODE:

GG60

#### **SECTION 8: Exposure controls/personal protection**

#### \* 8.1. Control parameters

#### 8.1.1. Occupational exposure limit values

Limit value type (country of origin)	Substance name	<ol> <li>Long-term occupational exposure limit value</li> <li>Short-term occupational exposure limit value</li> <li>Instantaneous value</li> <li>Monitoring and observation processes</li> <li>Remark</li> </ol>
IOELV (EU)	<b>butanone</b> CAS No.: 78-93-3 EC No.: 201-159-0	<ol> <li>200 ppm (600 mg/m<sup>3</sup>)</li> <li>300 ppm (900 mg/m<sup>3</sup>)</li> </ol>
WEL (GB)	<b>butanone</b> CAS No.: 78-93-3 EC No.: 201-159-0	<ol> <li>200 ppm (600 mg/m<sup>3</sup>)</li> <li>300 ppm (899 mg/m<sup>3</sup>)</li> </ol>
IOELV (EU)	Ethandiol CAS No.: 107-21-1 EC No.: 203-473-3	<ol> <li>20 ppm (52 mg/m<sup>3</sup>)</li> <li>40 ppm (104 mg/m<sup>3</sup>)</li> <li>(may be absorbed through the skin)</li> </ol>
WEL (GB)	Ethandiol CAS No.: 107-21-1 EC No.: 203-473-3	<ol> <li>20 ppm (52 mg/m<sup>3</sup>)</li> <li>40 ppm (104 mg/m<sup>3</sup>)</li> <li>(vapour, may be absorbed through the skin)</li> </ol>
WEL (GB)	Ethandiol CAS No.: 107-21-1 EC No.: 203-473-3	<ol> <li>10 mg/m<sup>3</sup></li> <li>(may be absorbed through the skin)</li> </ol>
WEL (GB)	<b>propan-2-ol</b> CAS No.: 67-63-0 EC No.: 200-661-7	<ol> <li>400 ppm (999 mg/m<sup>3</sup>)</li> <li>500 ppm (1,250 mg/m<sup>3</sup>)</li> </ol>
IOELV (EU)	(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2	<ol> <li>50 ppm (308 mg/m<sup>3</sup>)</li> <li>(may be absorbed through the skin)</li> </ol>
WEL (GB)	(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2	<ol> <li>50 ppm (308 mg/m<sup>3</sup>)</li> <li>(may be absorbed through the skin)</li> </ol>

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#### 8.1.2. Biological limit values

Limit value type (country of origin)	Substance name	Limit value	<ol> <li>Parameter</li> <li>Test material</li> <li>Time of sampling:</li> <li>Remark</li> </ol>
from 3 Jan 1900	<b>butanone</b> CAS No.: 78-93-3 EC No.: 201-159-0	70 μmol/L	<ol> <li>butan 2-one</li> <li>urine</li> <li>end of exposure or end of shift</li> </ol>

#### 8.1.3. DNEL-/PNEC-values

Substance name	DNEL value	① DNEL type		
		② Exposure route		
<b>butanone</b> CAS No.: 78-93-3 EC No.: 201-159-0	600 mg/m³	<ol> <li>DNEL worker</li> <li>Long-term - inhalation, systemic effects</li> </ol>		
<b>butanone</b> CAS No.: 78-93-3 EC No.: 201-159-0	106 mg/m³	<ol> <li>DNEL Consumer</li> <li>Long-term - inhalation, systemic effects</li> </ol>		
<b>butanone</b> CAS No.: 78-93-3 EC No.: 201-159-0	1,161 mg/kg bw/day	<ol> <li>DNEL worker</li> <li>Long-term - dermal, systemic effects</li> </ol>		
<b>butanone</b> CAS No.: 78-93-3 EC No.: 201-159-0	412 mg/kg bw/ day	<ol> <li>DNEL Consumer</li> <li>Long-term - dermal, systemic effects</li> </ol>		
<b>butanone</b> CAS No.: 78-93-3 EC No.: 201-159-0	31 mg/kg bw/ day	<ol> <li>DNEL worker</li> <li>Long-term - oral, systemic effects</li> </ol>		
<b>Ethandiol</b> CAS No.: 107-21-1 EC No.: 203-473-3	35 mg/m <sup>3</sup>	<ol> <li>DNEL worker</li> <li>Long-term - inhalation, systemic effects</li> </ol>		
<b>Ethandiol</b> CAS No.: 107-21-1 EC No.: 203-473-3	7 mg/m <sup>3</sup>	<ol> <li>DNEL Consumer</li> <li>Long-term - inhalation, systemic effects</li> </ol>		
<b>Ethandiol</b> CAS No.: 107-21-1 EC No.: 203-473-3	106 mg/kg bw/ day	<ol> <li>DNEL worker</li> <li>Long-term - dermal, systemic effects</li> </ol>		
<b>Ethandiol</b> CAS No.: 107-21-1 EC No.: 203-473-3	53 mg/kg bw/ day	<ol> <li>DNEL Consumer</li> <li>Long-term - dermal, systemic effects</li> </ol>		
<b>propan-2-ol</b> CAS No.: 67-63-0 EC No.: 200-661-7	500 mg/m <sup>3</sup>	<ol> <li>DNEL worker</li> <li>Long-term - inhalation, systemic effects</li> </ol>		
<b>propan-2-ol</b> CAS No.: 67-63-0 EC No.: 200-661-7	89 mg/m <sup>3</sup>	<ol> <li>DNEL Consumer</li> <li>Long-term - inhalation, systemic effects</li> </ol>		
<b>propan-2-ol</b> CAS No.: 67-63-0 EC No.: 200-661-7	319 mg/kg	<ol> <li>DNEL Consumer</li> <li>Long-term - dermal, systemic effects</li> </ol>		
<b>propan-2-ol</b> CAS No.: 67-63-0 EC No.: 200-661-7	888 mg/kg	<ol> <li>DNEL worker</li> <li>Long-term - dermal, local effects</li> </ol>		
<b>propan-2-ol</b> CAS No.: 67-63-0 EC No.: 200-661-7	26 mg/kg	<ol> <li>DNEL Consumer</li> <li>Long-term - oral, systemic effects</li> </ol>		
(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2	308 mg/m <sup>3</sup>	<ol> <li>DNEL worker</li> <li>Long-term - inhalation, systemic effects</li> </ol>		

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Substance name	DNEL value	1 DNEL type
		<ul><li>② Exposure route</li></ul>
(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2	37.2 mg/m <sup>3</sup>	<ol> <li>DNEL Consumer</li> <li>Long-term – inhalation, systemic effects</li> </ol>
(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2	283 mg/kg	<ol> <li>DNEL worker</li> <li>Long-term - dermal, systemic effects</li> </ol>
(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2	121 mg/kg	<ol> <li>DNEL Consumer</li> <li>Long-term - dermal, systemic effects</li> </ol>
(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2	36 mg/kg	<ol> <li>DNEL Consumer</li> <li>Long-term - oral, systemic effects</li> </ol>
<b>2-ethylhexyl acetate</b> CAS No.: 103-09-3 EC No.: 203-079-1	17 mg/m <sup>3</sup>	<ol> <li>DNEL worker</li> <li>Long-term - inhalation, systemic effects</li> </ol>
<b>2-ethylhexyl acetate</b> CAS No.: 103-09-3 EC No.: 203-079-1	3 mg/m <sup>3</sup>	<ol> <li>DNEL Consumer</li> <li>Long-term - inhalation, systemic effects</li> </ol>
<b>2-ethylhexyl acetate</b> CAS No.: 103-09-3 EC No.: 203-079-1	71 mg/m³	<ol> <li>DNEL worker</li> <li>Long-term - inhalation, local effects</li> </ol>
<b>2-ethylhexyl acetate</b> CAS No.: 103-09-3 EC No.: 203-079-1	35.5 mg/m <sup>3</sup>	<ol> <li>DNEL Consumer</li> <li>Long-term - inhalation, local effects</li> </ol>
<b>2-ethylhexyl acetate</b> CAS No.: 103-09-3 EC No.: 203-079-1	71 mg/m³	<ol> <li>DNEL worker</li> <li>Acute - inhalation, local effects</li> </ol>
<b>2-ethylhexyl acetate</b> CAS No.: 103-09-3 EC No.: 203-079-1	35.5 mg/m <sup>3</sup>	<ol> <li>DNEL worker</li> <li>Acute - inhalation, local effects</li> </ol>
<b>2-ethylhexyl acetate</b> CAS No.: 103-09-3 EC No.: 203-079-1	30 mg/kg	<ol> <li>DNEL worker</li> <li>Long-term - dermal, systemic effects</li> </ol>
<b>2-ethylhexyl acetate</b> CAS No.: 103-09-3 EC No.: 203-079-1	15 mg/kg	<ol> <li>DNEL Consumer</li> <li>Long-term - dermal, systemic effects</li> </ol>
<b>2-ethylhexyl acetate</b> CAS No.: 103-09-3 EC No.: 203-079-1	1.5 mg/kg	<ol> <li>DNEL Consumer</li> <li>Long-term - oral, systemic effects</li> </ol>
Substance name	PNEC Value	① PNEC type
<b>butanone</b> CAS No.: 78-93-3 EC No.: 201-159-0	55.8 mg/L	① PNEC aquatic, freshwater
<b>butanone</b> CAS No.: 78-93-3 EC No.: 201-159-0	55.8 mg/L	① PNEC aquatic, marine water
<b>butanone</b> CAS No.: 78-93-3 EC No.: 201-159-0	709 mg/L	① PNEC sewage treatment plant
<b>butanone</b> CAS No.: 78-93-3 EC No.: 201-159-0	284.74 mg/kg	① PNEC sediment, freshwater
<b>butanone</b> CAS No.: 78-93-3 EC No.: 201-159-0	284.7 mg/kg	① PNEC sediment, marine water
<b>butanone</b> CAS No.: 78-93-3 EC No.: 201-159-0	1 g/kg	PNEC secondary poisoning

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Substance name	PNEC Value	① PNEC type
butanone CAS No.: 78-93-3	55.8 mg/L	① PNEC aquatic, intermittent release
EC No.: 201-159-0		
<b>butanone</b> CAS No.: 78-93-3 EC No.: 201-159-0	22.5 mg/kg	① PNEC soil, freshwater
<b>propan-2-ol</b> CAS No.: 67-63-0 EC No.: 200-661-7	140.9 mg/L	① PNEC aquatic, freshwater
<b>propan-2-ol</b> CAS No.: 67-63-0 EC No.: 200-661-7	140.9 mg/L	① PNEC aquatic, marine water
<b>propan-2-ol</b> CAS No.: 67-63-0 EC No.: 200-661-7	2,251 mg/L	1 PNEC sewage treatment plant
<b>propan-2-ol</b> CAS No.: 67-63-0 EC No.: 200-661-7	552 mg/kg	① PNEC sediment, freshwater
<b>propan-2-ol</b> CAS No.: 67-63-0 EC No.: 200-661-7	28 mg/kg	① PNEC soil, freshwater
(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2	19 mg/L	① PNEC aquatic, freshwater
(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2	1.9 mg/L	① PNEC aquatic, marine water
(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2	4,168 mg/L	① PNEC sewage treatment plant
(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2	70.2 mg/kg	① PNEC sediment, freshwater
(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2	7.02 mg/kg	① PNEC sediment, marine water
(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2	2.74 mg/kg	① PNEC soil
(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2	190 mg/L	① PNEC aquatic, intermittent release
2-ethylhexyl acetate CAS No.: 103-09-3 EC No.: 203-079-1	0.00827 mg/L	① PNEC aquatic, freshwater
2-ethylhexyl acetate CAS No.: 103-09-3 EC No.: 203-079-1	0.000827 mg/ L	① PNEC aquatic, marine water
2-ethylhexyl acetate CAS No.: 103-09-3 EC No.: 203-079-1	100 mg/L	① PNEC sewage treatment plant
2-ethylhexyl acetate CAS No.: 103-09-3 EC No.: 203-079-1	0.213 mg/kg	① PNEC sediment, freshwater
<b>2-ethylhexyl acetate</b> CAS No.: 103-09-3 EC No.: 203-079-1	0.0213 mg/kg	① PNEC sediment, marine water
<b>2-ethylhexyl acetate</b> CAS No.: 103-09-3 EC No.: 203-079-1	0.0827 mg/L	① PNEC aquatic, intermittent release

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Substance name	PNEC Value	① PNEC type
<b>2-ethylhexyl acetate</b> CAS No.: 103-09-3 EC No.: 203-079-1	0.0377 mg/kg	① PNEC soil, freshwater

#### 8.2. Exposure controls

#### 8.2.1. Appropriate engineering controls

Technical measures and the application of suitable work processes have priority over personal protection equipment. generation/formation of aerosols: Technical ventilation of workplace.

#### 8.2.2. Personal protection equipment



#### Eye/face protection:

Eye glasses with side protection EN 166

#### Skin protection:

The glove material has to be resistant and impermeable to the product / the substance / the mixture. In full conatct: Suitable material: Butyl caoutchouc (butyl rubber), Thickness of the glove material >0,7 mm, Breakthrough time: >480 min.

In splash contact: Hand protection is not required.

Tested protective gloves must be worn. EN ISO 374. In the case of wanting to use the gloves again, clean them before taking off and air them well. Breakthrough times and swelling properties of the material must be taken into consideration.

#### Respiratory protection:

If technical exhaust or ventilation measures are not possible or insufficient, respiratory protection must be worn.

Filtering device with filter or ventilator filtering device of type: AX.

#### **Thermal hazards:**

Risk of explosion if heated under confinement.

#### Other protection measures:

Wear suitable protective clothing.

#### 8.2.3. Environmental exposure controls

No data available

#### **SECTION 9: Physical and chemical properties**

#### 9.1. Information on basic physical and chemical properties

#### Appearance

Physical state: Liquid Odour: Ethanol

Colour: colourless

#### Safety relevant basis data

Parameter	Value	at °C	<ol> <li>Method</li> </ol>	
			② Remark	
рН	7	23 °C		
Melting point	-114 °C			
Freezing point	not determined			
Initial boiling point and boiling range	80 °C			
Decomposition temperature	not determined			
Flash point	12 °C			
Evaporation rate	not determined			
Auto-ignition temperature	not determined			
Upper/lower flammability or explosive limits	not determined			
Vapour pressure	not determined			

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### **FSG-Green Solution Bio**

Parameter	Value	at °C	1 Method
			2 Remark
Vapour density	not determined		
Density	not determined		
Relative density	not determined		
Bulk density	not determined		
Water solubility	completely miscible		
Partition coefficient: n-octanol/water	not determined		
Dynamic viscosity	not determined		
Kinematic viscosity	not determined		

#### 9.2. Other information

No data available

### **SECTION 10: Stability and reactivity**

#### 10.1. Reactivity

Highly flammable liquid and vapour.

#### 10.2. Chemical stability

The product is stable under storage at normal ambient temperatures.

#### 10.3. Possibility of hazardous reactions

Possibility of hazardous reactions/Exothermic reaction with: Acid, Light metals (Formation of: Hydrogen).

#### 10.4. Conditions to avoid

Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.

#### 10.5. Incompatible materials

Oxidising agent.

#### 10.6. Hazardous decomposition products

In case of warming: Flammable solvent vapor mixtures are possible. Gases/vapours, toxic.

#### **SECTION 11: Toxicological information**

#### 11.1. Information on hazard classes as defined in Regulation (EC) No 1272/2008

butanone CAS No.: 78-93-3 EC No.: 201-159-0

LD<sub>50</sub> oral: 2,740 mg/kg (Rat) Toxicology and Applied Pharmacology. Vol. 19, Pg. 699, 1971.

LD<sub>50</sub> dermal: 6,480 mg/kg (Rabbit) Shell Chemical Company. Vol. MSDS-5390-4,

Ethandiol CAS No.: 107-21-1 EC No.: 203-473-3

LD<sub>50</sub> oral: 4,700 mg/kg (Ratte) Gigiena Truda i Professional'nye Zabolevaniya. Labor Hygiene and Occupational Diseases. Vol. 26(6), Pg. 28, 1982.

LD<sub>50</sub> dermal: 10,600 mg/kg (Kaninchen) Toxicology of Drugs and Chemicals, Deichmann, W.B., New York, Academic Press, Inc., 1969Vol. -, Pg. 731, 1969

propan-2-ol CAS No.: 67-63-0 EC No.: 200-661-7

LD<sub>50</sub> oral: 5,050 mg/kg (Rat)

LD<sub>50</sub> dermal: 12,800 mg/m<sup>3</sup> (Rabbit)

LC50 Acute inhalation toxicity (gas): >25,000 mg/kg 6 h (Rat)

(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2

LD<sub>50</sub> oral: 5,140 mg/kg (Ratte) AMA Archives of Industrial Hygiene and Occupational Medicine. Vol. 9, Pg. 509, 1954 LD<sub>50</sub> dermal: 9,510 mg/kg (Kaninchen) American Industrial Hygiene Association Journal. Vol. 23, Pg. 95, 1962.

2-ethylhexyl acetate CAS No.: 103-09-3 EC No.: 203-079-1

LD<sub>50</sub> oral: 5,140 mg/kg (Ratte) ECHA

LD<sub>50</sub> dermal: >17,400 mg/kg (Guinea pig) ECHA

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Acute oral toxicity:
Based on available data, the classification criteria are not met.
Acute dermal toxicity:
Based on available data, the classification criteria are not met.
Acute inhalation toxicity:
Based on available data, the classification criteria are not met.
Skin corrosion/irritation:
Based on available data, the classification criteria are not met.
Serious eye damage/irritation:
Based on available data, the classification criteria are not met.
Respiratory or skin sensitisation:
Based on available data, the classification criteria are not met.
Germ cell mutagenicity:
Based on available data, the classification criteria are not met.
Carcinogenicity:
Based on available data, the classification criteria are not met.
Reproductive toxicity:
Based on available data, the classification criteria are not met.
STOT-single exposure:
Based on available data, the classification criteria are not met.
STOT-repeated exposure:
Based on available data, the classification criteria are not met.
Aspiration hazard:
Based on available data, the classification criteria are not met.
Additional information:
No data available
11.2. Information on other hazards
No data available

### **SECTION 12: Ecological information**

#### 12.1. Toxicity

butanone CAS No.: 78-93-3 EC No.: 201-159-0

LC<sub>50</sub>: 3,220 – 3,220 mg/L 4 d (fish, Pimephales promelas) Brooke, L.T., D.J. Call, D.L. Geiger, and C.E. Northcott 1984 Acute Toxicities of Organic Chemicals to Fathead Minnows (Pimephales promelas), Vol. 1. Center for Lake Superior Environmental Stud., Univ.of Wisconsin-Superior, Superior, WI :414

**EC**<sub>50</sub>: 5,090 – 5,090 mg/L 2 d (crustaceans) Randall, T.L., and P.V. Knopp 1980. Detoxification of Specific Organic Substances by Wet Oxidation. J.Water Pollut.Control Fed. 52(8):2117-2130

EC50: 2,029 mg/L 4 d (Algae/water plant) ECHA

NOEC: 68 mg/L 2 d (crustaceans) ECHA

Ethandiol CAS No.: 107-21-1 EC No.: 203-473-3

**LC**<sub>50</sub>: 8,050 – 72,900 mg/L 4 d (fish, Ceriodaphnia dubia affinis) Mayes, M.A., H.C. Alexander, and D.C. Dill 1983. A Study to Assess the Influence of Age on the Response of Fathead Minnows in Static Acute Toxicity Tests. Bull.Environ.Contam.Toxicol. 31(2):139-147; Greene, M.W., and R.M. Kocan 1997. Toxicological Mechanisms of a Multicomponent Agricultural Seed Protectant in the Rainbow Trout (Oncorhynchus mykiss) and Fathead Minnow (Pimephales promelas). Can.J.Fish.Aquat.Sci. 54:1387-1390

LC<sub>50</sub>: 6,900 – 1,000,000 mg/L 2 d (crustaceans, Daphnia magna) Gersich, F.M., F.A. Blanchard, S.L. Applegath, and C.N. Park 1986. The Precision of Daphnid (Daphnia magna Straus, 1820) Static Acute Toxicity Tests. Arch.Environ.Contam.Toxicol. 15(6):741-749; Cowgill, U.M., I.T. Takahashi, and S.L. Applegath 1985. A Comparison of the Effect of Four Benchmark Chemicals on Daphnia magna and Ceriodaphnia dubia affinis Tested at Two Different Temperatures. Environ.Toxicol.Chem. 4(3):415-422 (Author Communication Used)

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propan-2-ol CAS No.: 67-63-0 EC No.: 200-661-7
<b>LC<sub>50</sub>:</b> 9,640 mg/L 4 d (fish, Pimephales promelas (fathead minnow))
<b>LC<sub>50</sub>:</b> 9,714 mg/L 2 d (crustaceans, Daphnia magna (Big water flea))
<b>NOEC:</b> 250 mg/L 4 d (Algae/water plant, Tetrahymena thermophilia)
NOEC: 754 mg/L 2 d (Algae/water plant)
(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2
<b>LC<sub>50</sub>:</b> >1,000 mg/L 4 d (fish, Poecilia reticulata) ECHA
<b>LC<sub>50</sub>:</b> >1,000 mg/L 4 d (fish, Pimephales promelas (fathead minnow)) ECHA
<b>EC<sub>50</sub>:</b> >969 mg/L 3 d (Algae/water plant, Pseudokirchneriella subcapitata) ECHA
NOEC: 1,930 mg/L 4 d (fish, Cyprinodon variegatus) ECHA
NOEC: ≥0.5 mg/L 21 d (crustaceans, Daphnia magna (Big water flea)) ECHA
NOEC: ≥969 mg/L 3 d (Algae/water plant, Pseudokirchneriella subcapitata) ECHA
2-ethylhexyl acetate CAS No.: 103-09-3 EC No.: 203-079-1
<b>LC<sub>50</sub>:</b> 8.27 mg/L 4 d (fish, Oncorhynchus mykiss (Rainbow trout))
<b>LC<sub>50</sub>:</b> >4.5 mg/L 4 d (fish, Oncorhynchus mykiss (Rainbow trout))
<b>EC<sub>50</sub>:</b> 22.9 mg/L 2 d (crustaceans, Daphnia magna (Big water flea))
<b>EC<sub>50</sub>:</b> >21.9 mg/L 3 d (Algae/water plant, Pseudokirchneriella subcapitata)
NOEC: 2.51 mg/L 4 d (fish, Oncorhynchus mykiss (Rainbow trout))
NOEC: >4.5 mg/L 4 d (fish, Oncorhynchus mykiss (Rainbow trout))
NOEC: 15.7 mg/L 2 d (crustaceans, Daphnia magna (Big water flea))
NOEC: 10.3 mg/L 3 d (Algae/water plant, Pseudokirchneriella subcapitata)
2.2. Persistence and degradability
butanone CAS No.: 78-93-3 EC No.: 201-159-0
Biodegradation: Yes, rapidly
Ethandiol CAS No.: 107-21-1 EC No.: 203-473-3
Biodegradation: Yes, rapidly
propan-2-ol CAS No.: 67-63-0 EC No.: 200-661-7
Biodegradation: Yes, rapidly
Remark: Empfohlener Wert der LOG KOW Datenbank
(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2
Biodegradation: Yes, rapidly
2-ethylhexyl acetate CAS No.: 103-09-3 EC No.: 203-079-1
Biodegradation: Yes, rapidly
2.3. Bioaccumulative potential
butanone CAS No.: 78-93-3 EC No.: 201-159-0
Log K <sub>OW</sub> : 0.3
Ethandiol CAS No.: 107-21-1 EC No.: 203-473-3
Log K <sub>OW</sub> : -1.36
propan-2-ol CAS No.: 67-63-0 EC No.: 200-661-7
Log K <sub>OW</sub> : 0.05
(2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2
Log K <sub>OW</sub> : 0.004
2-ethylhexyl acetate CAS No.: 103-09-3 EC No.: 203-079-1 Log K <sub>OW</sub> : 3.74
Bioconcentration factor (BCF): 136

#### 12.4. Mobility in soil

No data available

\*

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#### 12.5. Results of PBT and vPvB assessment

butanone CAS No.: 78-93-3 EC No.: 201-159-0

Results of PBT and vPvB assessment: —

Ethandiol CAS No.: 107-21-1 EC No.: 203-473-3

Results of PBT and vPvB assessment: This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII. propan-2-ol CAS No.: 67-63-0 EC No.: 200-661-7

**Results of PBT and vPvB assessment:** This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII. (2-methoxymethylethoxy)propanol CAS No.: 34590-94-8 EC No.: 252-104-2

**Results of PBT and vPvB assessment:** This substance does not meet the PBT/vPvB criteria of REACH, Annex XIII. **2-ethylhexyl acetate** CAS No.: 103-09-3 EC No.: 203-079-1

**Results of PBT and vPvB assessment:** vPvB-substance.

#### **12.6. Endocrine disrupting properties**

No data available

#### 12.7. Other adverse effects

No data available

#### SECTION 13: Disposal considerations

#### **13.1.** Waste treatment methods

#### 13.1.1. Product/Packaging disposal

#### Waste codes/waste designations according to EWC/AVV

#### Waste code product

14 06 03 \* other solvents and solvent mixtures

#### \*: Evidence for disposal must be provided. Directive 2008/98/EC (Waste Framework Directive)

HP 3 Flammable

#### **Remark:**

Изхвърляне съгласно Наредбата за предотвратяване и обезвреждане на отпадъци (VVEA, ehem. TVA) ШВЕЙЦАРИЯ - Код на отпадъците: 1101 - Нехалогенирани разтворители

#### Waste code packaging

15 01 06 mixed packaging

#### Waste treatment options

#### Appropriate disposal / Product:

Dispose of waste according to applicable legislation. Consult the appropriate local waste disposal expert about waste disposal.

#### Appropriate disposal / Package:

Completely emptied packages can be recycled.

#### Other disposal recommendations:

The allocation of waste identity numbers/waste descriptions must be carried out according to the EEC, specific to the industry and process.

#### 13.2. Additional information

Return to Distributor..

#### **SECTION 14: Transport information**

Land transport (ADR/RID)	Inland waterway craft (ADN)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA-DGR)
14.1. UN number or	ID number		
UN 1993	UN 1993	UN 1993	UN 1993
14.2. UN proper shipping name			
FLAMMABLE LIQUID, N.O.S. (Ethanol Mixtures )			

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### **FSG-Green Solution Bio**

Land transport (ADR/RID)	Inland waterway craft (ADN)	Sea transport (IMDG)	Air transport (ICAO-TI / IATA-DGR)
14.3. Transport haza	rd class(es)		
*			
3	3	3	3
14.4. Packing group			
II	11	11	П
14.5. Environmental	hazards		
No	No	No	No
14.6. Special precau	tions for user		
Special Provisions: 640D	Special Provisions: 640D	Special Provisions: 640D	Special Provisions: 640D
Limited quantity (LQ): 1 L	Limited quantity (LQ): 1 L	Limited quantity (LQ):	Limited quantity (LQ): 1 L
Hazard identification number (Kemler No.): 33	Classification code: -	EmS-No.: F-E, S-D	
Classification code: F1			
Tunnel restriction code: (D/E)			

# **14.7. Maritime transport in bulk according to IMO instruments** not determined.

### **SECTION 15: Regulatory information**

# \* 15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

#### 15.1.1. EU legislation

#### Restrictions on use:

Observe employment restrictions under the Maternity Protection Directive (92/85/EEC) for expectant or nursing mothers. According to directive 94/33/EC, juveniles are only allowed to handle this product as long as all effects of dangerous substances are prevented.

#### Other regulations (EU):

Directive 2012/18/EU on the control of major-accident hazards involving dangerous substances [Seveso-III-Directive], Hazard categories:

- P5a Flammable Liquids, Category 1 or 2
- P5b Flammable liquids
- P5c Flammable liquids of Categories 2 or 3, not covered by P5a and P5b

**Directive 2004/42/EC on the limitation of emissions of volatile organic compounds:** Volatile organic compounds (VOC) content in percent by weight: 72.4 weight-%

# 15.1.2. National regulations

### Other regulations, restrictions and prohibition regulations

### Control of Substances Hazardous to Health (COSHH) Regulations

http://www.airquality.co.uk/

The Dangerous Substances and Explosive Atmospheres Regulations 2002 (DSEAR) EH40/2005 Workplace exposure limits

#### 15.2. Chemical Safety Assessment

Chemical safety assessments for substances in this mixture were not carried out.

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## **FSG-Green Solution Bio**

### **SECTION 16: Other information**

#### 16.1. Indication of changes \*

1.3.	Details of the supplier of the safety data sheet
1.4.	Emergency telephone number
2.2.	Label elements
3.2.	Mixtures
4.1.	Description of first aid measures
5.1.	Extinguishing media
5.3.	Advice for firefighters
7.3.	Specific end use(s)
8.1.	Control parameters
	Bioaccumulative potential
	Safety, health and environmental regulations/legislation specific for the substance or mixture
	Indication of changes
	Abbreviations and acronyms
16.5.	
	Abbreviations and acronyms
ACGIH	American Conference of Governmental Industrial Hygienists
ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland
ADR	Waterways European Agreement concerning the International Carriage of Dangerous Goods by Road
BCF	Bioconcentration Factor
CAS	Chemical Abstracts Service
CLP	Classification, Labelling and Packaging
DIN	German Institute for Standardization / German Industrial Standard
DNEL	derived no-effect level
EC <sub>50</sub>	Effective Concentration 50%
ECHA	European Chemicals Agency
EN	European Standard
ES	Exposure scenario
EWC ICAO	European Waste Catalogue International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods
IMO	International Maritime Organization
KG	body weight
LC <sub>50</sub>	Lethal (fatal) Concentration 50%
LD <sub>50</sub>	Lethal (fatal) Dose 50%
MAK	Maximum concentration in the workplace air (CH)
NFPA	National Fire Protection Association
NIOSH	National Institute for Occupational Safety & Health
NOEC	No Observed Effect Concentration
OEL	Threshold Limit Value
OSHA PBT	Occupational Safety & Health Administration persistent and bioaccumulative and toxic
PC	Product category
PNEC	Predicted No Effect Concentration
REACH	
RID	Dangerous goods regulations for transport by rail
SU	use category
TRGS	Technische Regeln für Gefahrstoffe
UN	United Nations
VOC ZNS	Volatile organic compounds
	central nervous system previations and acronyms, see ECHA: Guidance on information requirements and chemical safety
	ment, Chapter R.20 (list of terms and abbreviations).
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	en / GB Gesi.d

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### **FSG-Green Solution Bio**

#### **16.3. Key literature references and sources for data** No data available

# 16.4. Classification for mixtures and used evaluation method according to regulation (EC) No 1272/2008 [CLP]

Hazard classes and hazard categories	Hazard statements	Classification procedure
flammable liquids (Flam. Liq. 2)	H225: Highly flammable liquid and	
	vapour.	

#### \* 16.5. Relevant R-, H- and EUH-phrases (Number and full text)

Hazard statements		
H225	Highly flammable liquid and vapour.	
H302	Harmful if swallowed.	
H315	Causes skin irritation.	
H319	Causes serious eye irritation.	
H336	May cause drowsiness or dizziness.	

#### Supplemental hazard information EUH066 Repeated exposit

6 Repeated exposure may cause skin dryness or cracking.

#### 16.6. Training advice

No data available

#### 16.7. Additional information

The above information describes exclusively the safety requirements of the product and is based on our present-day knowledge. The information is intended to give you advice about the safe handling of the product named in this safety data sheet, for storage, processing, transport and disposal. The information cannot be transferred to other products. In the case of mixing the product with other products or in the case of processing, the information on this safety data sheet is not necessarily valid for the new made-up material.

\* Data changed compared with the previous version.