

Kit components

SDS-04-43 v1
Effective date: 26.01.2024

KIT CATALOGUE NUMBER	PRODUCT NAME	KIT SIZE, RXN
04-43-00S15	HOT FIREPol® GC Master Mix Kit	25 rxn x 20 µl
COMPONENT CAT. NO.	COMPONENT NAME	QUANTITY, PCS
04-33-00S15	HOT FIREPol® GC Master Mix	1
05-11-00001	25 mM MgCl ₂	1
DMSO_0.1	DMSO 100%	1

KIT CATALOGUE NUMBER	PRODUCT NAME	KIT SIZE, RXN
04-43-00115	HOT FIREPol® GC Master Mix Kit	250 rxn x 20 µl
COMPONENT CAT. NO.	COMPONENT NAME	QUANTITY, PCS
04-33-00115	HOT FIREPol® GC Master Mix	1
05-11-00005	25 mM MgCl ₂	1
DMSO_0.5	DMSO 100%	1

KIT CATALOGUE NUMBER	PRODUCT NAME	KIT SIZE, RXN
04-43-00115-5	HOT FIREPol® GC Master Mix Kit	1250 rxn x 20 µl
COMPONENT CAT. NO.	COMPONENT NAME	QUANTITY, PCS
04-33-00115	HOT FIREPol® GC Master Mix	5
05-11-00005	25 mM MgCl ₂	5
DMSO_0.5	DMSO 100%	5

KIT CATALOGUE NUMBER	PRODUCT NAME	KIT SIZE, RXN
04-43-02015	HOT FIREPol® GC Master Mix Kit	5000 rxn x 20 µl
COMPONENT CAT. NO.	COMPONENT NAME	QUANTITY, PCS
04-33-02015	HOT FIREPol® GC Master Mix	1
05-11-00005	25 mM MgCl ₂	20
DMSO_10	DMSO 100%	1

Safety Data Sheets for individual kit components are provided below.

Safety Data Sheet

In accordance with Regulation (EU) 2020/878

Revision date: 12.06.2023 version 3

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING	
Product name	HOT FIREPol® GC Master Mix, 5x
Catalog number	04-33-00S15, 04-33-00115, 04-33-00115-5, 04-33-02015
REACH registration number	Not applicable
ECHA registration number (EC-No)	Not applicable
Unique formula identifier (UFI) code	Not applicable
Recommended use of the chemical and uses advised against	This product is for Research Use Only. Not for consumer use.
Manufacturer/Supplier	Solis BioDyne OÜ Teaduspargi 9, 50411 Tartu, Estonia info@solisbiodyne.com Tel. +372 740 9960, Fax. +372 740 2079
Information in case of emergency	Solis BioDyne Tel. +372 740 9960 EU Emergency Service Tel 112 Estonian Poison Center +372 794 3794

2. HAZARDS IDENTIFICATION	
Classification of the substance or mixture	Classification according to Regulation (EC) No 1272/2008
Physical hazards	Not hazardous
Health hazards	Not hazardous
Environmental hazards	Not hazardous
Explosion hazards	Not hazardous
Additional hazards	This mixture does not contain any substances that are assessed to be a PBT or a vPvB The mixture does not contain any nanoforms
Label elements	Labelling according to Regulation (EC) No 1272/2008 [CLP]
Pictograms	None
Signal word	None
Hazard statements	Not applicable
EU Specific Hazard Statements	Not applicable
Precautionary Statements	
Prevention	Not applicable
Response	Not applicable
Storage	Routine storage at -28°C to -18°C until the end of shelf-life (Expiry Date marking on the package). Keep/store only in original/labeled container. Transport conditions in section 14
Disposal	Prevent product from entering drains. Do not allow material to contaminate ground water system
Other Hazards	No endocrine disruptors information is available

3. COMPOSITION/ INFORMATION ON INGREDIENTS	
3.1 Substances	
Hazardous/Non-hazardous Components:	
3.2 Mixtures	
Hazardous/Non-hazardous Components:	

Component	CAS-No.	EC-No.	REACH reg No	Conc % (w/w)	Classification according to Regulation (EC) No 1272/2008 (CLP)		
					Pictogram, signal word code (s)	Hazard class and category code (s)	Hazard statement code (s)
H ₂ O	7732-18-5	231-791-2	-	<93	-	-	-
Glycerol	56-81-5	200-289-5	01211947198718-XXXX	<6	-	-	-
MgCl ₂	7791-18-6	232-094-6	-	<1	-	-	-
HOT FIREPol® DNA Polymerase	N/A	N/A	-	<0.1	-	-	-
dGTP	2564-35-4	219-887-2	-	<0.1	-	-	-
dCTP	2056-98-6	218-153-9	-	<0.1	-	-	-
dATP	1927-31-7	217-662-3	-	<0.1	-	-	-
dTTP	365-08-2	206-669-7	-	<0.1	-	-	-
BSA	9048-46-8	232-936-2	-	<0.1	-	-	-

The product contains no substances which at their given concentration, are considered to be hazardous to health. We recommend handling all chemicals with caution.

There are no additional ingredients (incl nanoforms) present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment.

4. FIRST-AID MEASURES

Skin contact	Wash off with plenty of water. Immediate medical attention is not required.
Eye contact	Rinse opened eye immediately with plenty of water. Remove contact lenses if present. If irritation persists, get medical attention.
Inhalation	Move to fresh air. Consult a physician if necessary.
Ingestion	Clean mouth with water and drink afterwards plenty of water. Consult a physician if necessary.
Most important symptoms and effects, both acute and delayed	No information available
Indication of any immediate medical attention and special treatment needed	None
Notes to physician	Treat symptomatically

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	Dry chemical, CO ₂ , water spray or alcohol resistant foam.
Unsuitable extinguishing media	No information available
Fire/Explosion hazards	Not applicable
Protective equipment and precautions for fire-fighters	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Use personal protective equipment. Ensure adequate ventilation, especially in confined areas.
Personal protective equipment	Use personal protection recommended in Section 8.
Environmental precautions	Do not allow to enter surface/ sewers or ground water. Prevent further leakage or spillage if safe to do so. See section 12 for additional information.

Methods and material for containment and cleaning up	Soak up with inert absorbent material
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7. HANDLING AND STORAGE

Precautions for safe handling	Handle in accordance with good industrial hygiene and safety practice. Use personal protective equipment
Conditions for safe storage, including any incompatibilities	Store at -20°C. Keep/store only in original container. Transport conditions in section 14
Specific uses	For Research Use Only

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits		
Chemical Name	Country	Limits
Glycerol 56-81-5	Belgium (TWA)	10 mg/m ³
	Czech Republic	10 mg/m ³ TWA 15 mg/m ³ Ceiling
	France OEL (TLV)	10 mg/m ³
	Germany OEL (TWA)	200 mg/m ³ exposure factor 2
	Poland	10 mg/m ³ TWA
	Portugal	10 mg/m ³ TWA
	Spain OEL (TWA)	10 mg/m ³
	Switzerland	100 mg/m ³ STEL 50 mg/m ³ TWA
	United Kingdom	10 mg/m ³ TWA (mist)
	USA	15 mg/m ³ (total dust) 5 mg/m ³ (respirable)
Engineering measures	Showers. Eyewash stations. Ensure adequate ventilation.	
Personal protective equipment:		
Respiratory protection	Not required. Use in well ventilated areas.	
Skin and body protection	Wear suitable protective clothing and gloves	
Eye and face protection	Wear safety glasses with side shields (or goggles)	
Protection of hands	Check protective gloves prior to each use for their proper condition. Material of gloves: Nitrile rubber, NBP	
Hygiene measures	Handle in accordance with good industrial hygiene and safety practice	
Environmental exposure controls	Prevent product from entering drains. Do not allow material to contaminate ground water system	

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Liquid
Colour	Colorless
Odour	Not defined
pH value	7.0-9.0. Contact info@solisbiodyne.com for specific information
Melting/freezing point	No data available
Boiling point/ boiling range	No data available
Flammability	No data available
Lower and upper explosion limit	No data available
Flash point	No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Kinematic viscosity	No data available
Solubility	No data available

Partition coefficient n-octanol/water	No data available
Vapor pressure	No data available
Density and/or relative density	No data available
Relative vapor density	No data available
Decomposition temperature	No data available
Particle characteristics	No data available
Information with regard to physical hazard classes	Not hazardous
Other safety characteristics	No information available

10. STABILITY AND REACTIVITY

Reactivity	No data available
Chemical stability	Stable under normal conditions
Possibility of hazardous reactions	Hazardous reaction has not been reported
Conditions to avoid	No information available
Incompatible materials	Strong oxidizing agents, acids and alkali
Hazardous decomposition products	No data available

11. TOXICOLOGICAL INFORMATION

Acute toxicity	There is no evidence available indicating acute toxicity		
Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Glycerol 56-81-5	= 12600 mg/kg Oral	> 10 g/kg(Rabbit)	>2.75mg/L(Rat)
Skin corrosion/irritation	May cause skin irritation		
Serious eye damage/irritation	May cause eye irritation		
Sensitization:			
Respiratory	Material may be irritating to mucous membranes and upper respiratory tract		
Skin	Prolonged or repeated exposure may cause allergic reactions in certain sensitive individuals		
Germ cell mutagenicity	No data available		
Carcinogenicity	No data available		
Reproductive toxicity	No data available		
STOT-single exposure	No data available		
STOT-repeated exposure	No data available		
Aspiration hazard	No data available		
Endocrine disrupting properties	No data available		
Information on other hazards	No data available		

12. ECOLOGICAL INFORMATION

Marine pollutant	No data available
Ecotoxicity	No data available. Prevent product from entering drains. Do not allow material to contaminate ground water system.
Mobility	No data available
Persistence and degradability	No data available
Bioaccumulation	No data available
Endocrine disrupting properties	No data available
Other adverse effects	No data available

13. DISPOSAL CONSIDERATIONS

Waste handling and disposal	The generation of waste should be avoided or minimized wherever possible.
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	Disposal of this product, its solutions or of any by-products, shall comply with the requirements of all applicable local, regional or national/federal regulations.
Information regarding the disposal of the packaging	Empty containers or liners may retain some product residues. This material and its container must be disposed of in accordance with approved disposal technique
Physical/chemical properties that may affect waste treatment options shall be specified	No special
Sewage disposal	Do not empty into drains. Do not dispose of waste into sewer
Special precautions for any recommended waste treatment	Consider local regulations and safe disposal procedures

14. TRANSPORT INFORMATION

UN number:	
UN proper shipping name	Not applicable
Transport hazard class (es):	
Packing group	Not applicable
Environmental hazards	Not hazardous goods
Special precautions for user	Handle in accordance with good industrial hygiene and safety practice
Land transport ADR/RID (cross-border):	
ADR/RID class	Not regulated
Air transport ICAO-TI and IATA-DGR:	
ICAO/IATA class	Not regulated
Additional information	This substance is considered to be non-hazardous for transport
Transport conditions	Transport at ambient temperature Routine storage after transport -28°C to -18°C
Maritime transport in bulk according to IMO instruments	Not regulated

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the product	Safety, health and environmental regulations/legislation specific for the substance or mixture	None
	Substances of Very High Concern. EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances for Eventual Inclusion in Annex XIV	None
	Substance subject to authorisation per REACH Annex XIV	None
	Restricted substances under EC 1907/2006, Annex XVII	None
	Regulation (EC) No 649/2012 (Rotterdam Convention - export/import of dangerous chemicals)	None
	Regulation (EU) No 2019/1021 (Stockholm Convention persistent organic pollutants)	None
	EU - Substances Depleting the Ozone layer (1005/2009)	None
	German Water hazard classes (Wassergefährdungsklassen)	Glycerol 56-81-5 (hazard class 1 - slightly hazardous to water)
Components of animal origin	Regulation (EC) No 1069/2009 of the European Parliament and of the Council of 21 October 2009 laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) No 1774/2002 (Animal by-products Regulation)	Gelatin BSA
Chemical safety assessment	No Chemical safety assessment has been carried out	

16. OTHER INFORMATION

Prepared by	Solis BioDyne / Technology specialist
Reason for revision	Revised according (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006 (REACH)
Revision number	3
Revision date	12.06.2023
SDS is valid 3 years from revision date. Contact info@solisbiodyne.com for latest revision.	
Last changes	Added UFI, endocrine disruptors and nanforms information and formal changes in all sections except 4, 5, 6 and 10.
This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006 and (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006	
<p>IMPORTANT: The information in this SDS is provided in good faith based on our knowledge as of the issue date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind and we make no warranties or merchantability or fitness for a particular purpose. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used in accordance with our instructions. It is the responsibility of the buyer/user to ensure that its activities comply with all applicable governmental requirements. Since conditions of use of the product are not under the control of Solis BioDyne it is the duty of the buyer/user to determine the necessary conditions for the safe use of the product. Solis BioDyne will not be liable for any damages resulting from handling or contact with the product.</p>	
<p>Abbreviations: ADR/RID – Road Transport of Dangerous Material/International Carriage of Dangerous Goods by Rail. AGW – Time-weighted Average Concentration EC – European Commission CLP – Classification, Labelling and Packaging IATA-DGR – International Air Transport Association-Dangerous Goods Regulations ICAO-TI – International Civil Aviation Organization-Technical Instructions IMO – International Maritime Organization LD – Lethal Dose NBP – N-Butyl-2-pyrrolidone OEL – Occupational Exposure Limits PBT – Persistent Bioaccumulative Toxic PEL – Permissible Exposure Limits STEL – Short Term Exposure Limit STOT – Specific target organ toxicity TLV – Threshold Limit Value TWA – Time-Weighted Average</p>	

Safety Data Sheet

In accordance with Regulation (EU) 2020/878

Revision date: 12.06.2023 version 3

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING	
Product name	25 mM MgCl ₂
Catalog number	05-11-00001, 05-11-00005, 05-11-00025, 05-11-00050, 05-11-00200
REACH registration number	01-2119485597-19-XXXX
CAS number	7791-18-6
ECHA registration number (EC-No)	232-094-6
Unique formula identifier (UFI) code	Not applicable
Molecular Formula	MgCl ₂ · 6H ₂ O
Recommended use of the chemical and uses advised against	Laboratory Chemicals. Not for consumer use.
Manufacturer/Supplier	Solis BioDyne OÜ Teaduspargi 9, 50411 Tartu, Estonia info@solisbiodyne.com Tel. +372 740 9960, Fax. +372 740 2079
Information in case of emergency	Solis BioDyne Tel. +372 740 9960 EU Emergency Service Tel 112 Estonian Poison Center +372 794 3794
2. HAZARDS IDENTIFICATION	
Classification of the substance or mixture	Classification according to Regulation (EC) No 1272/2008
Physical hazards	Not hazardous
Health hazards	Not hazardous
Environmental hazards	Not hazardous
Explosion hazards	Not hazardous
Additional hazards	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher. Rapidly absorbed through skin. The mixture does not contain any nanoforms.
Label elements	Labelling according to Regulation (EC) No 1272/2008 [CLP]
Pictograms	None
Signal word	None
Hazard statements	Not applicable
EU Specific Hazard Statements	Not applicable
Precautionary Statements	
Prevention	Avoid breathing vapours, mist or gas. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.
Response	Not applicable
Storage	Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Store under inert gas. Hygroscopic. Storage until the end of shelf-life (Expiry Date marking on the package). Keep/store only in original/labeled container. Transport conditions in section 14
Disposal	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wetbrushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

Other Hazards	No endocrine disruptors information is available
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3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances

Hazardous/Non-hazardous Components:

Synonyms: MgCl₂ · 6H₂O, Magnesium chloride hexahydrate

Formula: MgCl₂ · 6H₂O

Molecular weight: 203.3 g/mol

CAS-No.: 7791-18-6

EC-No.: 232-094-6

3.2 Mixtures

Hazardous/Non-hazardous Components:

The product contains no substances which at their given concentration, are considered to be hazardous to health. We recommend handling all chemicals with caution.

There are no additional ingredients (incl nanoforms) present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment.

4. FIRST-AID MEASURES

Skin contact	Take off immediately all contaminated clothing. Wash off with soap and plenty of water. Consult a physician.
Eye contact	Flush eyes with water as a precaution. Remove contact lenses.
Inhalation	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Ingestion	Make victim drink water (two glasses at most). Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Most important symptoms and effects, both acute and delayed	The most important known symptoms and effects are described in section 11
Indication of any immediate medical attention and special treatment needed	None
Notes to physician	Treat symptomatically

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	Dry chemical, CO ₂ , water spray or alcohol resistant foam.
Unsuitable extinguishing media	No information available
Special hazards arising from the substance or mixture	Hydrogen chloride gas, Magnesium oxide. Not combustible. Fire may cause evolution of: Hydrogen chloride gas. Ambient fire may liberate hazardous vapours.
Protective equipment and precautions for fire-fighters	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Avoid breathing vapours, mist or gas. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.
Personal protective equipment	Use personal protection recommended in Section 8.
Environmental precautions	Do not allow to enter surface/ sewers or ground water. Prevent further leakage or spillage if safe to do so. See section 12 for additional information.
Methods and material for containment and cleaning up	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wetbrushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling	Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.
Conditions for safe storage, including any incompatibilities	Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Store under inert gas. Hygroscopic. Transport conditions in section 14
Specific uses	Apart from the uses mentioned in section 1 no other specific uses are stipulated.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits	Contains no substances with occupational exposure limit values.
Engineering measures	Showers. Eyewash stations. Ensure adequate ventilation.
Personal protective equipment:	
Respiratory protection	Required when dusts are generated. Use in well ventilated areas. Where risk assessment shows air-purifying respirators are appropriate use a fullface respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.
Skin and body protection	Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.
Eye and face protection	Safety glasses with side-shields conforming to EN166. Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).
Protection of hands	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. Splash contact Material: Nitrile rubber. Minimum layer thickness: 0,11 mm Break through time: 480 min. Material tested: KCL 741 Dermatril® L (KCL 743 / Aldrich Z677388, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374
Hygiene measures	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.
Environmental exposure controls	Prevent product from entering drains. Do not allow material to contaminate ground water system

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Liquid, clear
Colour	Colorless
Odour	Sulphurous
pH value	Not applicable
Melting/freezing point	116.7 °C
Boiling point/ boiling range	No data available
Flammability	The product is not flammable.
Lower and upper explosion limit	No data available
Flash point	No data available
Autoignition temperature	No data available
Decomposition temperature	No data available
Kinematic viscosity	No data available
Solubility in other solvents	No data available
Partition coefficient n-octanol/water	No data available

Vapor pressure	No data available
Vapour density	1,570 g/cm ³ at 20 °C
Density and/or relative density	No data available
Water solubility	468,7 g/l at 20 °C - OECD Test Guideline 105
Partition coefficient	Not applicable for inorganic substances
Relative vapour density	No data available
Viscosity	No data available
Oxidizing properties	The substance or mixture is not classified as oxidizing.
Explosive properties	Not explosive
Particle characteristics	No data available
Information with regard to physical hazard classes	Not hazardous
Surface tension	No data available

10. STABILITY AND REACTIVITY

Reactivity	No data available
Chemical stability	Stable under recommended storage conditions
Possibility of hazardous reactions	No data available
Conditions to avoid	No data available
Incompatible materials	No data available
Hazardous decomposition products	Other decomposition products - No data available In the event of fire: see section 5.

11. TOXICOLOGICAL INFORMATION

Acute toxicity			
Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
Magnesium chloride hexahydrate 7791-18-6	> 5.0 mg/kg (Rat)	> 2.0 mg/kg (Rat)	Negative (Guinea pig)
Skin corrosion/irritation	No skin irritation		
Serious eye damage/irritation	No eye irritation		
Sensitization:			
Respiratory	No data available		
Skin	No data available		
Germ cell mutagenicity	Negative		
Carcinogenicity	Negative		
Reproductive toxicity	No data available		
STOT-single exposure	No data available		
STOT-repeated exposure	Rat - male and female - Oral - 54 d - NOAEL (No observed adverse effect level) - > 1.000 mg/kg. Remarks: Subacute toxicity		
Aspiration hazard	No data available		
Endocrine disrupting properties	No data available		
Information on other hazards	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.		

12. ECOLOGICAL INFORMATION

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 21119 mg/l - 96 h
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Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) – 548,4 mg/l - 48 h.
Toxicity to algae	EC50 - Desmodesmus subspicatus (green algae) - > 100 mg/l - 72 h (OECD Test Guideline 201)
Toxicity to bacteria	EC50 - activated sludge - > 900 mg/l - 3 h (OECD Test Guideline 209)
Mobility in soil	No data available
Persistence and degradability	No data available
Biodegradability	No data available
Bioaccumulative potential	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher.
Ecotoxicity	No data available
Endocrine disrupting properties	The substance/mixture does not contain components considered to have endocrine disrupting properties according to REACH Article 57(f) or Commission Delegated regulation (EU) 2017/2100 or Commission Regulation (EU) 2018/605 at levels of 0.1% or higher.
Other adverse effects	Discharge into the environment must be avoided.

13. DISPOSAL CONSIDERATIONS

Waste handling and disposal	The generation of waste should be avoided or minimized wherever possible. Disposal of this product, its solutions or of any by-products, shall comply with the requirements of all applicable local, regional or national/federal regulations.
Information regarding the disposal of the packaging	Empty containers or liners may retain some product residues. This material and its container must be disposed of in accordance with approved disposal technique
Physical/chemical properties that may affect waste treatment options shall be specified	No special
Sewage disposal	Do not empty into drains. Do not dispose of waste into sewer
Special precautions for any recommended waste treatment	Consider local regulations and safe disposal procedures

14. TRANSPORT INFORMATION

UN number:	
UN proper shipping name	Not applicable
Transport hazard class (es):	
Packing group	Not applicable
Environmental hazards	Not hazardous goods
Special precautions for user	Handle in accordance with good industrial hygiene and safety practice
Land transport ADR/RID (cross-border):	
ADR/RID class	Not regulated
Air transport ICAO-TI and IATA-DGR:	
ICAO/IATA class	Not regulated
Additional information	This substance is considered to be non-hazardous for transport
Transport conditions	Transport at ambient temperature
Maritime transport in bulk according to IMO instruments	Not regulated

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture	None
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Safety, health and environmental regulations/legislation specific for the product	Substances of Very High Concern. EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances for Eventual Inclusion in Annex XIV	None
	Substance subject to authorisation per REACH Annex XIV	None
	Restricted substances under EC 1907/2006, Annex XVII	None
	Regulation (EC) No 649/2012 (Rotterdam Convention - export/import of dangerous chemicals)	None
	Regulation (EU) No 2019/1021 (Stockholm Convention persistent organic pollutants)	None
	EU - Substances Depleting the Ozone layer (1005/2009)	None
	German Water hazard classes (Wassergefährdungsklassen)	None
Chemical safety assessment	No Chemical safety assessment has been carried out	

16. OTHER INFORMATION

Prepared by	Solis BioDyne / Technology specialist
Reason for revision	Revised according (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006 (REACH)
Revision number	3
Revision date	12.06.2023
SDS is valid 3 years from revision date. Contact info@solisbiodyne.com for latest revision.	
Last changes	Added UFI, endocrine disruptors and nanforms information and formal changes in all sections except 4, 5, 6 and 10.
This safety data sheet complies with the requirements of Regulation (EC) No. 1907/2006 and (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006	
<p>IMPORTANT: The information in this SDS is provided in good faith based on our knowledge as of the issue date (or subsequent revision date, if any), and is to be used only as a guide. This SDS does not constitute a guarantee (express or implied) of any kind and we make no warranties or merchantability or fitness for a particular purpose. This information relates only to the designated product as shipped and may not be valid if the product is used in combination with any other materials or is not used in accordance with our instructions. It is the responsibility of the buyer/user to ensure that its activities comply with all applicable governmental requirements. Since conditions of use of the product are not under the control of Solis BioDyne it is the duty of the buyer/user to determine the necessary conditions for the safe use of the product. Solis BioDyne will not be liable for any damages resulting from handling or contact with the product.</p>	
<p>Abbreviations: ADR/RID – Road Transport of Dangerous Material/International Carriage of Dangerous Goods by Rail. AGW – Time-weighted Average Concentration EC – European Commission CLP – Classification, Labelling and Packaging IATA-DGR – International Air Transport Association-Dangerous Goods Regulations ICAO-TI – International Civil Aviation Organization-Technical Instructions IMO – International Maritime Organization LD – Lethal Dose NBP – N-Butyl-2-pyrrolidone OEL – Occupational Exposure Limits PBT – Persistent Bioaccumulative Toxic PEL – Permissible Exposure Limits STEL – Short Term Exposure Limit STOT – Specific target organ toxicity TLV – Threshold Limit Value TWA – Time-Weighted Average</p>	

Safety Data Sheet

In accordance with Regulation (EU) 2020/878

Revision date: 12.04.2023 version 4

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING	
Product name	100% DMSO
Catalog number	DMSO_0.1, DMSO_0.5, DMSO_1, DMSO_4, DMSO_2.5, DMSO_10
REACH registration number	01-2119431362-50-XXXX
CAS number	67-68-5
ECHA registration number (EC-No)	200-664-3
Unique formula identifier (UFI) code	Not applicable
Molecular Formula	C ₂ H ₆ OS
Recommended use of the chemical and uses advised against	Laboratory Chemicals. Not for consumer use.
Manufacturer/Supplier	Solis BioDyne OÜ Teaduspargi 9, 50411 Tartu, Estonia info@solisbiodyne.com Tel. +372 740 9960, Fax. +372 740 2079
Information in case of emergency	Solis BioDyne Tel. +372 740 9960 EU Emergency Service Tel 112 Estonian Poison Center +372 794 3794
2. HAZARDS IDENTIFICATION	
Classification of the substance or mixture	Classification according to Regulation (EC) No 1272/2008
Physical hazards	Not hazardous
Health hazards	Not hazardous
Environmental hazards	Not hazardous
Explosion hazards	Not hazardous
Additional hazards	This substance/mixture contains no components considered to be either persistent, bioaccumulative and toxic (PBT), or very persistent and very bioaccumulative (vPvB) at levels of 0.1% or higher. Rapidly absorbed through skin. The mixture does not contain any nanoforms.
Label elements	Labelling according to Regulation (EC) No 1272/2008 [CLP]
Pictograms	None
Signal word	None
Hazard statements	Not applicable
EU Specific Hazard Statements	Not applicable
Precautionary Statements	
Prevention	Avoid breathing vapours, mist or gas. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.
Response	Not applicable
Storage	Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Store under inert gas. Hygroscopic. Storage until the end of shelf-life (Expiry Date marking on the package). Keep/store only in original/labeled container. Transport conditions in section 14
Disposal	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wetbrushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

Other Hazards	No endocrine disruptors information is available
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3. COMPOSITION/ INFORMATION ON INGREDIENTS

3.1 Substances

Hazardous/Non-hazardous Components:

Synonyms: DMSO, Dimethyl sulfoxide

Formula: C₂H₆OS

Molecular weight: 78.13 g/mol

CAS-No.: 67-68-5

EC-No.: 200-664-3

3.2 Mixtures

Hazardous/Non-hazardous Components:

The product contains no substances which at their given concentration, are considered to be hazardous to health. We recommend handling all chemicals with caution.

There are no additional ingredients (incl nanoforms) present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment.

4. FIRST-AID MEASURES

Skin contact	Take off immediately all contaminated clothing. Wash off with soap and plenty of water. Consult a physician.
Eye contact	Flush eyes with water as a precaution. Remove contact lenses.
Inhalation	If breathed in, move person into fresh air. If not breathing, give artificial respiration. Consult a physician.
Ingestion	Make victim drink water (two glasses at most). Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Rinse mouth with water. Consult a physician.
Most important symptoms and effects, both acute and delayed	The most important known symptoms and effects are described in section 11
Indication of any immediate medical attention and special treatment needed	None
Notes to physician	Treat symptomatically

5. FIRE-FIGHTING MEASURES

Suitable extinguishing media	Dry chemical, CO ₂ , water spray or alcohol resistant foam.
Unsuitable extinguishing media	No information available
Special hazards arising from the substance or mixture	Carbon oxides, Sulphur oxides. Combustible. Vapors are heavier than air and may spread along floors. Forms explosive mixtures with air on intense heating. Development of hazardous combustion gases or vapours possible in the event of fire.
Protective equipment and precautions for fire-fighters	Wear self-contained breathing apparatus and protective clothing to prevent contact with skin and eyes

6. ACCIDENTAL RELEASE MEASURES

Personal precautions	Avoid breathing vapours, mist or gas. Remove all sources of ignition. Beware of vapours accumulating to form explosive concentrations. Vapours can accumulate in low areas. For personal protection see section 8.
Personal protective equipment	Use personal protection recommended in Section 8.
Environmental precautions	Do not allow to enter surface/ sewers or ground water. Prevent further leakage or spillage if safe to do so. See section 12 for additional information.
Methods and material for containment and cleaning up	Contain spillage, and then collect with an electrically protected vacuum cleaner or by wetbrushing and place in container for disposal according to local regulations (see section 13). Keep in suitable, closed containers for disposal.

7. HANDLING AND STORAGE

Precautions for safe handling	Avoid inhalation of vapour or mist. Keep away from sources of ignition - No smoking. Take measures to prevent the build up of electrostatic charge.
Conditions for safe storage, including any incompatibilities	Store in cool place. Keep container tightly closed in a dry and well-ventilated place. Store under inert gas. Hygroscopic. Transport conditions in section 14
Specific uses	Apart from the uses mentioned in section 1 no other specific uses are stipulated.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Exposure Limits	Contains no substances with occupational exposure limit values.	
Chemical Name	Country	Limits
DMSO 67-68-5	Austria	50 ppm 160 mg/m³
	Denmark (TWA)	50 ppm 160 mg/m³
	Germany OEL (TWA)	50 ppm exposure factor 2 160 mg/m³ exposure factor 2
	Lithuania OEL (TWA)	50 ppm 150 mg/m³
	Sweden	50 ppm TLV NGV 150 mg/m³ TLV NGV
	Switzerland	100 ppm STEL 320 mg/m³ STEL 50 ppm TWA 160 mg/m³ TWA
Engineering measures	Showers. Eyewash stations. Ensure adequate ventilation.	
Personal protective equipment:		
Respiratory protection	Not required. Use in well ventilated areas. Where risk assessment shows air-purifying respirators are appropriate use a fullface respirator with multi-purpose combination (US) or type ABEK (EN 14387) respirator cartridges as a backup to engineering controls.	
Skin and body protection	Impervious clothing, The type of protective equipment must be selected according to the concentration and amount of the dangerous substance at the specific workplace.	
Eye and face protection	Safety glasses with side-shields conforming to EN166 Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU).	
Protection of hands	Handle with gloves. Gloves must be inspected prior to use. Use proper glove removal technique (without touching glove's outer surface) to avoid skin contact with this product. Dispose of contaminated gloves after use in accordance with applicable laws and good laboratory practices. Wash and dry hands. The selected protective gloves have to satisfy the specifications of Regulation (EU) 2016/425 and the standard EN 374 derived from it. Splash contact Material: Nitrile rubber Minimum layer thickness: 0,2 mm Break through time: 38 min Material tested:Dermatril® P (KCL 743 / Aldrich Z677388, Size M) data source: KCL GmbH, D-36124 Eichenzell, phone +49 (0)6659 87300, e-mail sales@kcl.de, test method: EN374	
Hygiene measures	Handle in accordance with good industrial hygiene and safety practice. Wash hands before breaks and at the end of workday.	
Environmental exposure controls	Prevent product from entering drains. Do not allow material to contaminate ground water system	

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Liquid, clear
Colour	Colorless
Odour	Sulphurous
pH value	Not applicable
Melting/freezing point	16 - 19°C
Boiling point/ boiling range	189°C
Flammability	No data available
Lower and upper explosion limit	Upper explosion limit: 42 %(V) Lower explosion limit: 3.5 %(V)
Flash point	87°C - closed cup - ASTM D 93
Autoignition temperature	No data available
Decomposition temperature	No data available
Kinematic viscosity	No data available
Solubility in other solvents	Alcohol - soluble Diethylether - soluble
Partition coefficient n-octanol/water	No data available
Vapor pressure	0.55 hPa at 20°C 4 hPa at 50°C
Vapour density	2.70 - (Air = 1.0)
Density and/or relative density	1.1 g/mL
Water solubility	Completely miscible
Partition coefficient	log Pow: -1.349
Relative vapour density	2.70 - (Air = 1.0)
Viscosity	No data available
Oxidizing properties	The substance or mixture is not classified as oxidizing.
Explosive properties	Not explosive
Particle characteristics	No data available
Information with regard to physical hazard classes	Not hazardous
Surface tension	43.5 mN/m at 20°C

10. STABILITY AND REACTIVITY

Reactivity	No data available
Chemical stability	Stable under recommended storage conditions
Possibility of hazardous reactions	No data available
Conditions to avoid	Heat, flames and sparks
Incompatible materials	Acid chlorides, Phosphorus halides, Strong acids, Strong oxidizing agents, Strong reducing agents
Hazardous decomposition products	Hazardous decomposition products formed under fire conditions. - Carbon oxides, Sulphur oxides. Other decomposition products - No data available In the event of fire: see section 5.

11. TOXICOLOGICAL INFORMATION

Acute toxicity			
Chemical Name	Oral LD50	Dermal LD50	Inhalation LC50
DMSO 67-68-5	14.500 mg/kg (Rat)	> 5.000 mg/kg (Rabbit)	>40250 ppm (Rat 4h)
Skin corrosion/irritation	Mild skin irritation		
Serious eye damage/irritation	May cause eye irritation		
Sensitization:			
Respiratory	No data available		
Skin	No data available		

Germ cell mutagenicity	No data available
Carcinogenicity	No data available There are no known carcinogenic chemicals in this product
Reproductive toxicity	No data available
STOT-single exposure	No data available
STOT-repeated exposure	No data available
Aspiration hazard	No data available
Endocrine disrupting properties	No data available
Information on other hazards	RTECS: PV6210000 Exposure to large amounts can cause: redness of skin, Itching, burning, sedation, Headache, Nausea, Dizziness. To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

12. ECOLOGICAL INFORMATION

Toxicity to fish	LC50 - Pimephales promelas (fathead minnow) - 34.000 mg/l - 96 h LC50 - Oncorhynchus mykiss (rainbow trout) - 35.000 mg/l - 96 h
Toxicity to daphnia and other aquatic invertebrates	EC50 - Daphnia magna (Water flea) - 24.600 mg/l - 48 h. (OECD Test Guideline 202)
Toxicity to algae	EC50 - Pseudokirchneriella subcapitata (green algae) - 17.000 mg/l - 72 h. (OECD Test Guideline 201)
Mobility in soil	No data available
Persistence and degradability	No data available
Biodegradability	Result: 31 % - According to the results of tests of biodegradability this product is not readily biodegradable. (OECD Test Guideline 301D)
Bioaccumulative potential	No data available
Ecotoxicity	This product is slightly hazardous for water Do not allow product to reach ground water, water course or sewage system
Endocrine disrupting properties	No data available
Othe adverse effects	No data available Stability in water – 0.12 – 1.2 h at 30°C Remarks: Hydrolyses readily.

13. DISPOSAL CONSIDERATIONS

Waste handling and disposal	The generation of waste should be avoided or minimized wherever possible. Disposal of this product, its solutions or of any by-products, shall comply with the requirements of all applicable local, regional or national/federal regulations.
Information regarding the disposal of the packaging	Empty containers or liners may retain some product residues. This material and its container must be disposed of in according to approved disposal technique
Physical/chemical properties that may affect waste treatment options shall be specified	No special
Sewage disposal	Do not empty into drains. Do not dispose of waste into sewer
Special precautions for any recommended waste treatment	Consider local regulations and safe disposal procedures

14. TRANSPORT INFORMATION

UN number:	
UN proper shipping name	Not applicable
Transport hazard class (es):	

Packing group	Not applicable
Environmental hazards	Not hazardous goods
Special precautions for user	Handle in accordance with good industrial hygiene and safety practice
Land transport ADR/RID (cross-border):	
ADR/RID class	Not regulated
Air transport ICAO-TI and IATA-DGR:	
ICAO/IATA class	Not regulated
Additional information	This substance is considered to be non-hazardous for transport
Transport conditions	Transport at ambient temperature
Maritime transport in bulk according to IMO instruments	Not regulated

15. REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture	Safety, health and environmental regulations/legislation specific for the substance or mixture	None
	Substances of Very High Concern. EU - REACH (1907/2006) - Article 59(1) - Candidate List of Substances for Eventual Inclusion in Annex XIV	None
	Substance subject to authorisation per REACH Annex XIV	None
	Restricted substances under EC 1907/2006, Annex XVII	None
	Regulation (EC) No 649/2012 (Rotterdam Convention - export/import of dangerous chemicals)	None
	Regulation (EU) No 2019/1021 (Stockholm Convention persistent organic pollutants)	None
	EU - Substances Depleting the Ozone layer (1005/2009)	None
Safety, health and environmental regulations/legislation specific for the product	German Water hazard classes (Wassergefährdungsklassen)	DMSO 67-68-5 (hazard class 1 - slightly hazardous to water)
	Chemical safety assessment	No Chemical safety assessment has been carried out

16. OTHER INFORMATION

Prepared by	Solis BioDyne / Technology specialist
Reason for revision	Revised according (EU) 2020/878 amending Annex II to Regulation (EC) No 1907/2006 (REACH)
Revision number	4
Revision date	12.04.2023
SDS is valid 3 years from revision date. Contact info@solisbiodyne.com for latest revision.	
Last changes	Added UFI, endocrine disruptors and nanforms information and formal changes in all sections except 4, 5, 6 and 10.
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STEL – Short Term Exposure Limit
STOT – Specific target organ toxicity
TLV – Threshold Limit Value
TWA – Time-Weighted Average