SAFETY DATA SHEET

1. COMPANY & PRODUCT IDENTIFICATION

Product Name **myNGS™ Guides MitoDeplete™ Kit** (8 Reaction Size)

Box#1

-	Cas9 Enzyme	10 µl
-	10x Buffer C	20 µl
-	ProK	20 µl
-	Nuclease-Free Water	200 µl

Box#2

-	Guides (Human, Mouse, or Custom)	20 µl

Product Code Cat# 901008, 902008, 909008

Recommended Usage For research use only. Not intended for human or animal diagnostic or therapeutic uses.

Company Information Arbor Biosciences
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Chemtrec EU: (202) 483-7616

2. HAZARDS IDENTIFICATION

Classification

ProK, 10x Buffer C, Nuclease-Free Water, Guides

This chemical is not considered hazardous by the 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200)

Cas9 Enzyme

Not a dangerous substance or mixture according to the Globally Harmonized System (GHS)

Hazards not otherwise classified (HNOC)

Not applicable

Label Elements

Hazard Statements: Not a hazardous substance or mixture according to the Globally Harmonized System (GHS)

Component	Appearance	Physical State	Odor
Cas9 Enzyme	Colorless	Liquid	Mild
10x Buffer C	Colorless	Liquid	Mild
ProK	Colorless	Liquid	Mild
Nuclease-Free Water	Colorless	Liquid	Mild
Guides	Colorless	Liquid	Mild

Other Information

Cas9 Enzyme	No data available
10x Buffer C	May be harmful if swallowed
ProK	Not applicable
Nuclease-Free Water	Not applicable
Guides	Not applicable

Unknown Acute Toxicity

Cas9 Enzyme	No data available
10x Buffer C	99.9 % of the mixture consists of ingredient(s) of unknown toxicity 93.1 % of the mixture consists of ingredient(s) of unknown acute oral toxicity 94.1 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity 99.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas) 99.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor) 99.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)
ProK	52.2 % of the mixture consists of ingredient(s) of unknown toxicity 2.2 % of the mixture consists of ingredient(s) of unknown acute oral toxicity 2.2 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity 52.2 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas) 52.2 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor) 52.2 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)
Nuclease-Free Water	Not applicable
Guides	No data available

3. COMPOSITION/INFORMATION ON INGREDIENTS

Mixture

Cas9 Enzyme ProK Nuclease-Free Water Guides	The product contains no substances which at their given concentration, are considered to be hazardous to health.

Component Name	Chemical Name	CAS number	Weight-%
10x Buffer C	Magnesium Chloride	7786-30-3	1 - 5

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

4. FIRST AID MEASURES

First Aid Measures

General Advice
Immediate medical attention is required. In case of accident or unwellness, seek medical advice immediately (show directions for use or safety data sheet if possible). Remove from exposure, lie down. Do not breathe dust/fume/gas/mist/vapors/spray.

Eye Contact
Rinse thoroughly with plenty of water for at least 15 minutes, lifting lower and upper eyelids. Consult a physician.

Skin Contact
Wash skin with soap and water.

Inhalation
Remove to fresh air.

Ingestion
Clean mouth with water and drink afterwards plenty of water.

Most important symptoms and effects, both acute and delayed
No information available

Indication of any immediate medical attention and special treatment needed
Note to physicians
Treat symptomatically.

5. FIRE-FIGHTING MEASURES

Suitable Extinguishing Media
Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable Extinguishing Media
CAUTION: Use of water spray when fighting fire may be inefficient.

Specific hazards arising from the chemical
No information available.

Explosion data
Sensitivity to mechanical impact None

Sensitivity to static discharge None

Special protective equipment for fire-fighters

Firefighters should wear self-contained breathing apparatus and full firefighting turnout gear. Use personal protection equipment.

6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures

Personal precautions Ensure adequate ventilation.

Methods and material for containment and cleaning up

Methods for containment Prevent further leakage or spillage if safe to do so.

Methods for cleaning up Pick up and transfer to properly labeled containers.

7. HANDLING & STORAGE

Precautions for safe handling

Advice on safe handling Handle in accordance with good industrial hygiene and safety practice.

Conditions for safe storage, including any incompatibilities

Storage Conditions Keep containers tightly closed in a dry, cool and well-ventilated place.

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control parameters

Exposure Limits

Component Name	Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Cas9 Enzyme	Glycerol 56-81-5	-	TWA: 15 mg/m^3 mist, total particulate TWA: 5 mg/m^3 mist, respirable fraction (vacated) TWA: 10 mg/m^3 mist, total particulate (vacated) TWA: 5 mg/m^3 mist, respirable fraction	-

Other information

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Appropriate engineering controls

Engineering controls Showers
Eyewash stations
Ventilation systems

Individual protection measures, such as personal protective equipment

Eye/face protection Wear safety glasses with side shields (or goggles).

Hand protection Wear suitable gloves.

Skin and body protection	Wear suitable protective clothing.
Respiratory protection	No protective equipment is needed under normal use conditions. If exposure limits are exceeded or irritation is experienced, ventilation and evacuation may be required.
General hygiene considerations	Handle in accordance with good industrial hygiene and safety practice.

9. PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Physical state	Liquid
Appearance	Colorless
Odor	Mild
Odor threshold	No information available

Property	Values		Remarks / Method
pH	Cas9 Enzyme -	7.4	
	10x Buffer C -	No data available	
	ProK -	7.4	
	Nuclease-Free Water -	7.0	
	Guides -	No data available	
Melting point / freezing point	No data available		None known
Boiling point / boiling range	No data available		None known
Flash point	No data available		None known
Evaporation rate	No data available		None known
Flammability (solid, gas)	No data available		None known
Flammability Limit in Air			None known
Upper flammability or explosive limits	No data available		
Lower flammability or explosive limits	No data available		
Vapor pressure	No data available		None known
Vapor density	No data available		None known
Relative density	No data available		None known
Water solubility	No data available		None known
Solubility in other solvents	No data available		None known
Partition coefficient	No data available		None known
Autoignition temperature	No data available		None known
Decomposition temperature	No data available		None known
Kinematic viscosity	No data available		None known
Dynamic viscosity	No data available		None known

Other information

Explosive properties	No information available
Oxidizing properties	No information available
Softening point	No information available
Molecular weight	No information available
VOC Content (%)	No information available
Liquid Density	No information available
Bulk density	No information available

10. STABILITY AND REACTIVITY

Reactivity	No information available.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	None under normal processing.
Conditions to avoid	None known based on information supplied.
Incompatible materials	None known based on information supplied.
Hazardous decomposition products	None known based on information supplied.

11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure

Product Information

Inhalation	Specific test data for the substance or mixture is not available.
Eye contact	Specific test data for the substance or mixture is not available.
Skin contact	Specific test data for the substance or mixture is not available.
Ingestion	May be harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Symptoms No information available.

Acute toxicity

Numerical measures of toxicity

The following values are calculated based on chapter 3.1 of the GHS document.

Cas9 Enzyme	ATEmix (oral) ATEmix (dermal)	No information available No information available
10x Buffer C	ATEmix (oral) ATEmix (dermal)	3,012.50 mg/kg 10,172.40 mg/kg
ProK	ATEmix (oral) ATEmix (dermal)	25,200.00 mg/kg 20,000.00 mg/kg
Nuclease-Free Water	ATEmix (oral) ATEmix (dermal)	No information available No information available

Guides	ATEmix (oral) ATEmix (dermal)	No information available No information available

Unknown Acute Toxicity

Cas9 Enzyme	No data available
10x Buffer C	99.9 % of the mixture consists of ingredient(s) of unknown toxicity 93.1 % of the mixture consists of ingredient(s) of unknown acute oral toxicity 94.1 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity 99.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas) 99.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor) 99.9 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)
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Nuclease-Free Water	Not applicable
Guides	No data available

Delayed and immediate effects as well as chronic effects from short and long-term exposure

Skin corrosion/irritation	No information available.
Serious eye damage/eye irritation	No information available.
Respiratory or skin sensitization	No information available.
Germ cell mutagenicity	No information available.
Carcinogenicity	No information available.
Reproductive toxicity	No information available.
STOT - single exposure	No information available.
STOT - repeated exposure	No information available.
Aspiration hazard	No information available.
Other adverse effects	No information available.
Interactive effects	No information available.

12. ECOLOGICAL INFORMATION

Ecotoxicity

Component	Chemical Name	Algae/aquatic plants	Fish	Toxicity to microorganisms	Crustacea
Cas9 Enzyme	Sodium Chloride 7647-14-5	-	12946: 96 h Lepomis macrochirus mg/L LC50 static 4747 - 7824: 96 h	-	340.7 - 469.2: 48 h Daphnia magna mg/L EC50 Static 1000: 48 h Daphnia magna mg/L EC50

			Oncorhynchus mykiss mg/L LC50 flow-through 5560 - 6080: 96 h Lepomis macrochirus mg/L LC50 flow-through 6020 - 7070: 96 h Pimephales promelas mg/L LC50 static 7050: 96 h Pimephales promelas mg/L LC50 semi-static 6420 - 6700: 96 h Pimephales promelas mg/L LC50 static		
Cas9 Enzyme	Ethylenediamine tetraacetic acid 60-00-4	1.01: 72 h Desmodesmus subspicatus mg/L EC50	44.2 - 76.5: 96 h Pimephales promelas mg/L LC50 static 34 - 62: 96 h Lepomis macrochirus mg/L LC50 static	-	113: 48 h Daphnia magna mg/L EC50 Static
10x Buffer C	Magnesium Chloride 7786-30-3	EC50: >82.7mg/L (72h, Pseudokirchneriella subcapitata)	LC50: =4210mg/L (96h, Gambusia affinis) LC50: 1970 - 3880mg/L (96h, Pimephales promelas)	-	EC50: =140mg/L (48h, Daphnia magna) EC50: =1400mg/L (24h, Daphnia magna)

Persistence and degradability No information available.
Bioaccumulation There is no data for this product.
Other adverse effects No information available.

13. DISPOSAL CONSIDERATIONS

Waste treatment methods

Waste from residues/unused products
Dispose of in accordance with local regulations. Dispose of waste in accordance with environmental legislation.

Contaminated packaging
Do not reuse empty containers.

14. TRANSPORTATION INFORMATION

DOT	Not regulated
TDG	Not regulated
MEX	Not regulated
ICAO (air)	Not regulated
IATA	Not regulated
IMDG	Not regulated
RID	Not regulated
ADR	Not regulated
ADN	Not regulated

15. REGULATORY INFORMATION

International Inventories

TSCA	Complies

Legend:

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

US Federal Regulations

SARA 313

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product does not contain any chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372.

SARA 311/312 Hazard Categories

Should this product meet EPCRA 311/312 Tier reporting criteria at 40 CFR 370, refer to Section 2 of this SDS for appropriate classifications.

CWA (Clean Water Act)

This product does not contain any substances regulated as pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42).

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

US State Regulations

California Proposition 65

This product does not contain any Proposition 65 chemicals.

U.S. State Right-to-Know Regulations

Component	Chemical Name	New Jersey	Massachusetts	Pennsylvania
Cas9 Enzyme ProK	Glycerol 56-81-5	X	X	X
Cas9 Enzyme 10x Buffer C ProK Nuclease-Free Water Guides	Water 7732-18-5	-	-	-

U.S. EPA Label Information

EPA Pesticide Registration Number Not applicable

16. OTHER INFORMATION

NFPA	Health hazards 0	Flammability 0	Instability 0	Special Hazard -
HMIS	Health hazards 1	Flammability 0	Physical hazards 0	Personal protection X

Key or legend to abbreviations and acronyms used in the safety data sheet

Legend Section 8:

TWA TWA (time-weighted average)

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END OF SAFETY DATA SHEET