

## Edinburgh Genetics Material Safety Data Sheet (MSDS)

**Product name:** Buffer solution

**Issue date:** 03/03/2020

**Identified use of product:** dilution of samples  
No special instructions

**Manufacturer:**

Edinburgh Genetics Limited  
64a Cumberland street  
Edinburgh  
EH3 6RE  
United Kingdom

<b>1.0 Hazard Description</b>
Hazard class and label elements of the product according to regulation (EC) No. 1272/2008[EU-GHS/CLP]
<b>1.2 GHS Classification of Substance of Mixture</b>
Non-hazardous substance or mixture
<b>1.3 Label Elements</b>
Hazard pictograms: Not applicable Signal word: NA Hazard statements: NA

<b>2.0 Material: NA</b>		
<b>2.1 Mixture: Applicable detailed below</b>		
Chemical Name	CAS No.	%(by weight)
Water	7732-18-5	98.812
Sodium Chloride	7647-14-5	0.800
Disodium Hydrogenorthophosphate	7758-79-4	0.144
Polysorbate 20	9005-64-5	0.100
Proclin 300	NA	0.100
Potassium Dihydrogenorthophosphate	7778-77-0	0.024
Potassium Chloride	7447-40-7	0.020

<b>3.0 First Aid Measures</b>
<b>3.1 General Advice</b>
Show this material safety data sheet to the doctor in attendance. After receiving the first-aid measure required, consult a physician if necessary
<b>Skin contact:</b> Remove contaminated clothing and shoes. Wash off with mild soap and plenty of water. If skin irritation occurs or persists, consult a physician immediately.
<b>Eye contact:</b> Check for and remove any contact lenses, do not rub eyes with hand. Provide a readily-accessible eyewash facility and quick-drench safety shower. Occasionally lifting the upper and lower eyelids. Immediately flush eyes with running water, until the chemical residue is gone. Seek medical attention if irritation occurs.
<b>Inhalation:</b> Move exposed person to fresh air. Keep person warm and rested. If they are not breathing or if breathing is irregular, provide artificial respiration or oxygen by trained personnel. It may be dangerous to give the person mouth-to-mouth resuscitation. Get medical attention if adverse health effects persist or are severe. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.
<b>Ingestion:</b> Wash out mouth with water. Move exposed person to fresh air. Keep person warm and at rest. If material has been swallowed and the person is unconscious, give small quantities of water to drink. Stop if the exposed person feels sick as vomiting may be dangerous. Do not induce vomiting unless directed to do so by medical personnel. If vomiting occurs, the head should be kept low so that vomit does not enter the lungs. Get medical attention if the adverse health effects persist or are severe. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway.
<b>3.2 Important acute and delayed symptoms/effects</b>
The most important known symptoms and effects are described in section 10
<b>3.3 Immediate/special treatment</b>
Continue with first aid measures. Treat symptomatically and supportively. Symptoms may be delayed.

<b>4.0 Firefighting Measures</b>
<b>4.1 Extinguishing method and extinguishing agent</b>
Product is unlikely to burn, if this product is involved in a fire Suitable extinguishing agents: use dry sand, dry chemical or CO2 extinguishing foam. Water spray can be used to cool fire exposed containers/materials. Use extinguishing media most appropriate for the surrounding fire. Unsuitable extinguishing agents: None
<b>4.2 Special hazards arising from the substance or mixture</b>
If the product is involved in a fire, the following can be released: Carbon oxides, sodium oxides, metal oxides, etc
<b>4.3 Fire precautions and measures</b>
Firefighters must wear self-contained breathing apparatus and full body fire suit
<b>5.0 Accidental Release Measures</b>
<b>5.1 Personal Precautions, protective equipment and emergency procedures:</b>
No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through the spilt material to avoid slipping. Avoid breathing dust, vapour or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
<b>5.2 Environmental Precautions</b>
Prevent further leakage or spillage if safe to do so. Prevent entry into the sewage system.
<b>5.3 Collecting and clearing method for disposal of material</b>
Small spill: Wash the leakage with plenty of water Large spill: Stop leak if without risk. Move containers from spill area. Approach the spill from upwind if outdoors. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in a container for disposal according to local regulations (see section 12). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilt product. Disposal: Contaminated material must be disposed of in accordance with all State and/or Local regulations.

<b>6.0 Handling and Storage</b>
<b>6.1 Handling Precautions</b>
Put on appropriate personal protective equipment (see section 7). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Avoid contact with eyes and skin. Do not ingest. Avoid breathing dust, vapour or mist. Normal measures for preventative fire protection. Observe good housekeeping procedures and hygiene practices. Wash hands thoroughly after handling. Handle carefully to prevent damage to the packaging and container. Persons with a history of sensitive skin problems should not be employed in any process in which this product is used.
<b>6.2 Information about protection against explosions and fires</b>
For non-flammable and non-explosive goods, general rules of fire prevention should be observed. Keep away from open flames, hot surfaces and sources of ignition.
<b>6.3 Precautions for storage</b>
Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 9) and food and drink. Keep away from heat/sparks/open flames/hot surfaces. Keep container tightly closed and sealed until ready for use. Keep out of reach of children. Do not ingest. Do not freeze. Recommended storage temperature: 2 - 30°C Humidity: < 60%
<b>6.4 Packaging materials</b>
Recommended: use original container

<b>7.0 Exposure Controls/Personal Protection</b>
<b>7.1 Engineering control</b>
There is usually no need to take measures unless dust, fumes or steam arise and the concentration can not be brought to lower than the recommendation for the specific country. Measures like installing ventilation should be taken.
<b>7.2 Personal Protection</b>
<p><b>Respiratory protection:</b>          If exposure limits are exceeded or if irritation occurs or other symptoms are experienced, use a full-face respirator with multi-purpose combination</p> <p><b>Eye protection:</b>          Wear safety glasses when there is potential for contact with eyes</p> <p><b>Skin protection:</b>          Wear suitable protective clothing</p> <p><b>Hand protection:</b>          Wear protective gloves. Check protective gloves prior to use for their proper condition.</p> <p><b>Other protection:</b>          Smoking, eating and drinking is forbidden in the workplace. After work, shower and change clothes.</p>

<b>8.0 Physical and Chemical Properties</b>	
<b>8.1 Information on basic physical and chemical properties</b>	
Appearance	Colorless liquid
Odour	Mild
Melting point/freezing point	NA
Boiling point	NA
Flash point (closed cup °C)	>93
Steam pressure	NA
Explosion limit	Non-explosive
Water soluble	Soluble in water
Oxidizing properties	The substance of mixture is not classified as oxidizing

<b>9.0 Stability and Reactivity</b>
<b>9.1 Stability</b>
The product is chemically stable
<b>9.2 Reactivity</b>
Stable under recommended storage and handling conditions
<b>9.3 Incompatible materials</b>
Strong oxidising agents, strong acids and strong bases
<b>9.4 Conditions to avoid</b>
Incompatible materials, high temperature, direct sunlight and open fire
<b>9.5 Hazardous decomposition products</b>
Under normal conditions of storage and use, hazardous decomposition products should not be produced

<b>10.0 Toxicological Information</b>				
<b>10.1 Acute Toxicity</b>				
Ingredient Name	CAS No.	LD <sub>50</sub> (Oral)	LD <sub>50</sub> (Dermal)	LC <sub>50</sub> (Inhalation)
Sodium Chloride	7647-14-5	Rat: 3000mg/kg	Rabbit: >10000mg/kg	No data
Polysorbate 20	9005-64-5	Mouse: >33000mg/kg	No data	No data
Potassium Dihydrogenorthophosphate	7778-77-0	Rat: 4640mg/kg	Rabbit: >4640mg/kg	No data
Potassium Chloride	7447-40-7	Rat: 2600mg/kg Mouse: 1500mg/kg	No data	No data

<b>10.2 Skin Corrosion/irritation</b>						
Ingredient Name	CAS No.	Species	Route	Value	Result	Type of Test
Sodium Chloride	7647-14-5	Rabbit	Skin	500mg/24H	Mild	Standard Draize test
<b>10.3 Eye corrosion/irritation</b>						
Ingredient name	CAS No.	Species	Route	Value	Result	Type of test
Sodium Chloride	7647-14-5	Rabbit	Eye	100mg/24H	Moderate	Standard Draize test
Potassium chloride	7447-40-7	Rabbit	Eye	500mg/24H	Mild	Standard Draize test
<b>10.4 Respiratory or skin sensitization</b>						
These products are not known to cause human skin or respiratory sensitization						
<b>10.5 Germ Cell Mutagenicity</b>						

According to the existing data, the product is not classified
<b>10.6 Carcinogenicity</b>
No classification data on the carcinogenic properties of this material is available from the EPA, IARC, NTP, OSHA or ACGIH
<b>10.7 Reproductive Toxicity</b>
According to the existing data, the product is not classified

<b>11.0 Ecological Information</b>
<b>11.1 Ecotoxicity values</b>
This product contains no hazardous or toxic substances, and presents a negligible impact on the environment based on its reported use pattern
<b>11.2 Persistence and degradability</b>
The products are naturally degradable
<b>11.3 Bioaccumulative potential</b>
The potential for bioaccumulation of this material in aquatic organisms is low
<b>11.4 Mobility in soil</b>
Will penetrate the soil and will be dissolved in the soil material

<b>12.0 Disposal Considerations</b>
<b>12.1 Residual Waste</b>
The generation of waste should be avoided or minimised wherever possible. You may be able to dissolve or mix material with a combustible solvent and burn in a chemical incinerator equipped with an after burner and scrubber system.
<b>12.2 Contaminated packaging</b>
The generation of waste should be avoided or minimised wherever possible. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible.
<b>12.3 Disposal Considerations</b>
Processing, use or contamination of this product may change the waste management options. Dispose of container and unused contents in accordance with national and local relevant regulations/laws.

<b>13.0 Transport Information</b>
According to IATA DGR 61 <sup>st</sup> edition for transportation, IMO International Maritime Dangerous Goods Code (Amendment 39-18), European Agreement Concerning the International Carriage of Dangerous Goods by Road. The products are not subject to ADR, RID, IMDG and IATA DGR.
<b>13.1 UN number</b>
ADR, RID, AND, IMDG, IATA: Not regulated
<b>13.2 UN proper shipping name</b>
ADR, RID, AND, IMDG, IATA: Not regulated
<b>13.3 Transport Hazard Class(es)</b>
ADR, RID, AND, IMDG, IATA: Not regulated

<b>13.4 Packing group</b>
ADR, RID, AND, IMDG, IATA: Not regulated
<b>13.5 Environmental Hazards</b>
IMDG Marine pollutant: No
<b>13.6 Special precautions for user</b>
Should check whether the container is full, sealed before shipping. Ensure that the product does not collapse, fall or become damaged during the transport process. Transportation should prevent isolation and high temperature and water. Avoid rain, polluted, damaged, long-term exposure. Stopover should be far away from fire, heat source and high temperature and water.

<b>14.0 Regulatory Information</b>
14.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

CAS No.	TSCA	IECSC	EINECS/ELINCS/NLP	DSL/NDSL
7732-18-5	Listed	Listed	Listed	Listed DSL
7647-14-5	Listed	Listed	Listed	Listed DSL
7758-79-4	Unlisted	Unlisted	Listed	Listed DSL
9005-64-5	Listed	Listed	Listed	Listed DSL
7778-64-5	Listed	Listed	Listed	Listed DSL
7447-40-7	Listed	Listed	Listed	Listed DSL

<b>15.0 Other information</b>	
ACGIH	American Conference of Government Industrial Hygienists
ADR	European Agreement concerning the International Carriage of Dangerous Goods by Road
CAS	Chemical Abstracts Service
CLP	Classification, labelling and packaging
EC	Council of Europe
ECHA	European Chemicals Agency
EINECS	European Inventory of Existing commercial Chemical substances
GHS	Globally Harmonized System of Classification and Labelling of Chemicals
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
ICAO	International Civil Aviation Organisation
IMDG	International Maritime Dangerous Goods Code



IC50	Inhibitory Concern Triton 50%
LC50	Lethal Concentration 50%
LD50	Median Lethal Dose 50%
MAPROL	International Convention for the Prevention of Pollution from Ships
REACH	REGULATION concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals
RID	Regulation for rail International transportation of Dangerous goods
STEL	Short Term Exposure Limit
TWA	Time Weighted Average
MAC	Maximum Allowable Concentration
OSHA	Occupational Safety and Health Administration
NIOSH	National Institute for Occupational Safety and Health

The above information is believed to be correct but we cannot guarantee the absolute universality and accuracy and shall only be used as a guide. The information in this document is based on the present state of our knowledge and is applicable to the product with regard to appropriate safety precautions. It does not represent any guarantee of the properties of the product.



*Figure 1: Product Photo*