



SAFETY DATA SHEET

United States

Section 1. Identification

Product name

DNA Extraction Kit BACC3

Catalogue Number

RPN8512



9 0 R P N 8 5 1 2

Other means of identification

Not available.

Product type

Liquid.

Relevant identified uses of the substance or mixture and uses advised against

Identified uses

Analytical chemistry.
Laboratory chemicals
Scientific research and development

Supplier

Cytiva
Amersham Place
Little Chalfont
Buckinghamshire
HP7 9NA United Kingdom
+44 1494 508000

Cytiva USA
100 Results Way
Marlborough, MA 01752
1-800-526-3593

In case of emergency

INFOTRAC - 24 Hour number: 1-800-535-5053
Outside of the United States, call 24 Hour number: 001-352-323-3500 (Call Collect)

Section 2. Hazards identification

OSHA/HCS status

This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture

OXIDIZING LIQUIDS - Category 2
ACUTE TOXICITY: ORAL - Category 4
AQUATIC HAZARD (LONG-TERM) - Category 3

GHS label elements

Hazard pictograms



Signal word

Danger

Hazard statements

May intensify fire; oxidizer.
Harmful if swallowed.
Harmful to aquatic life with long lasting effects.

Precautionary statements

Prevention

Wear protective gloves. Wear eye or face protection. Keep away from heat. - No smoking. Keep away from clothing, incompatible materials and combustible materials. Take any precaution to avoid mixing with combustibles and other incompatible materials. Avoid release to the environment. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. IF SWALLOWED: Call a POISON CENTER or physician if you feel unwell. Rinse mouth.

Response

Storage

Not applicable.

Disposal

Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified

None known.



Hazards identified when used No known significant effects or critical hazards.

Section 3. Composition/information on ingredients

Substance/mixture Mixture

Other means of identification Not available.

Ingredient name	Synonyms	%	Identifiers
sodium perchlorate	Perchloric acid, sodium salt (1:1); Perchloric acid, sodium salt; compound stabilisers containing by weight 15 % or more but not more than 40 % of sodium perchlorate (CAS RN 7601-89-0) and not more than 70 % of 2-(2-methoxyethoxy) ethanol (CAS RN 111-77-3); perchloric acid sodium salt; Inenat; Perchlorate Salts; Perchloric acid, sodium salt (1:1), Sodium perchlorate	≥60 - ≤80	CAS: 7601-89-0

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

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

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Continue to rinse for at least 10 minutes. Get medical attention.
Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. It may be dangerous to the person providing aid to give 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. Loosen tight clothing such as a collar, tie, belt or waistband.
Skin contact	Rinse immediately contaminated clothing and skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur. Wash clothing before reuse. Clean shoes thoroughly before reuse.
Ingestion	Wash out mouth with water. Remove dentures if any. Remove victim to fresh air and keep at rest in a position comfortable for breathing. If material has been swallowed and the exposed person is conscious, 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 necessary, call a poison center or physician. Never give anything by mouth to an unconscious person. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	May cause eye irritation.
Inhalation	No known significant effects or critical hazards.
Skin contact	May cause skin irritation.
Ingestion	Harmful if swallowed.

Over-exposure signs/symptoms

Eye contact	No specific data.
Inhalation	No specific data.
Skin contact	No specific data.
Ingestion	No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.
Specific treatments	No specific treatment.
Protection of first-aiders	No action shall be taken involving any personal risk or without suitable training. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

See toxicological information (Section 11)



Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media	Use an extinguishing agent suitable for the surrounding fire.
Unsuitable extinguishing media	None known.
Specific hazards arising from the chemical	Oxidizing material. May intensify fire. In a fire or if heated, a pressure increase will occur and the container may burst. This material is harmful to aquatic life with long lasting effects. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.
Hazardous thermal decomposition products	Decomposition products may include the following materials: halogenated compounds metal oxide/oxides
Special protective actions for fire-fighters	Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.
Special protective equipment for fire-fighters	Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel	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 spilled material. Shut off all ignition sources. No flares, smoking or flames in hazard area. Avoid breathing vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.
For emergency responders	If specialized clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".
Environmental precautions	Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up

Small spill	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Dilute with water and mop up if water-soluble. Do not absorb in sawdust or other combustible material. It may lead to a fire risk when it dries out. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.
Large spill	Stop leak if without risk. Move containers from spill area. Use spark-proof tools and explosion-proof equipment. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Do not absorb in sawdust or other combustible material. It may lead to a fire risk when it dries out. 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 container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures	Put on appropriate personal protective equipment (see Section 8). Do not ingest. Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist. Avoid release to the environment. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Keep away from clothing, incompatible materials and combustible materials. Keep away from heat. Empty containers retain product residue and can be hazardous. Do not reuse container.
Advice on general occupational hygiene	Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.
Conditions for safe storage, including any incompatibilities	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 10) and food and drink. Separate from reducing agents and combustible materials. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.



Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name

sodium perchlorate

Exposure limits

None.

Biological exposure indices

No exposure indices known.

Appropriate engineering controls

Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Environmental exposure controls

Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures

Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Eye/face protection

Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.

Skin protection

Hand protection

Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection

Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection

Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection

Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state

Liquid.

Color

Colorless.

Odor

Odorless.

Odor threshold

Not available.

pH

8 [Conc. (% w/w): 100%]

Melting point/freezing point

Not available.

Boiling point or initial boiling point and boiling range

Not available.

Flash point

Not applicable.

Burning time

Not applicable.

Burning rate

Not applicable.

Evaporation rate

Not available.

Flammability

Not available.

Lower and upper explosive (flammable) limits

Not available.

Vapor pressure

Not available.

Vapor Pressure at 20°C

Vapor pressure at 50°C

Ingredient name
water

mm Hg
17.5

kPa
2.3

Method

mm Hg

kPa

Method

Relative vapor density

Not available.



Relative density Not available.**Solubility(ies)**

	Media	Result
	cold water	Easily soluble
	hot water	Easily soluble

Solubility in water Not available.**Partition coefficient: n-octanol/
water** Not applicable.**Auto-ignition temperature** Not available.**Decomposition temperature** Not available.**SADT** Not available.**Viscosity** Not available.**Flow time (ISO 2431)** Not available.**Particle characteristics****Median particle size** Not applicable.**Section 10. Stability and reactivity****Reactivity** No specific test data related to reactivity available for this product or its ingredients.**Chemical stability** The product is stable.**Possibility of hazardous
reactions** Hazardous reactions or instability may occur under certain conditions of storage or use.
Conditions may include the following:

contact with combustible materials

Reactions may include the following:

risk of causing or intensifying fire

Conditions to avoid Drying on clothing or other combustible materials may cause fire.**Incompatible materials** Reactive or incompatible with the following materials:
combustible materials
reducing materials**Hazardous decomposition
products** Under normal conditions of storage and use, hazardous decomposition products should not be produced.**Section 11. Toxicological information****Information on toxicological effects****Acute toxicity****Product/ingredient name**

sodium perchlorate

Result**Rat - Oral - LD50**

2100 mg/kg

Toxic effects: Behavioral - Excitement Lung, Thorax, or Respiration -
Dyspnea Changes in Chemistry or Temperature - Body temperature
decrease**Conclusion/Summary
[Product]** Not available.**Skin corrosion/irritation**

Not available.

**Conclusion/Summary
[Product]** Not available.**Serious eye damage/eye irritation**

Not available.

**Conclusion/Summary
[Product]** Not available.**Respiratory corrosion/irritation**

Not available.

**Conclusion/Summary
[Product]** Not available.**Respiratory or skin sensitization**

Not available.

Skin

Conclusion/Summary [Product]	Not available.
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Respiratory

Conclusion/Summary [Product]	Not available.
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Germ cell mutagenicity

Not available.

Conclusion/Summary [Product]	Not available.
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Carcinogenicity

Not available.

Conclusion/Summary [Product]	Not available.
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Reproductive toxicity

Not available.

Conclusion/Summary [Product]	Not available.
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Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure	Routes of entry anticipated: Oral, Dermal, Inhalation.
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Potential acute health effects

Eye contact	May cause eye irritation.
Inhalation	No known significant effects or critical hazards.
Skin contact	May cause skin irritation.
Ingestion	Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact	No specific data.
Inhalation	No specific data.
Skin contact	No specific data.
Ingestion	No specific data.

Delayed and immediate effects and also chronic effects from short and long term exposure**Short term exposure**

Potential immediate effects	Not available.
Potential delayed effects	Not available.

Long term exposure

Potential immediate effects	Not available.
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Potential delayed effects Not available.

Potential chronic health effects

Not available.

Conclusion/Summary [Product] Not available.

General No known significant effects or critical hazards.
Carcinogenicity No known significant effects or critical hazards.
Mutagenicity No known significant effects or critical hazards.
Reproductive toxicity No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Product/ingredient name	Oral (mg/kg)	Dermal (mg/kg)	Inhalation (gases) (ppm)	Inhalation (vapors) (mg/l)	Inhalation (dusts and mists) (mg/l)
DNA Extraction Kit BACC3	800	N/A	N/A	N/A	N/A
sodium perchlorate	500	N/A	N/A	N/A	N/A

Other information Adverse symptoms include the following: methemoglobinemia

Section 12. Ecological information

Toxicity

Product/ingredient name	Result
sodium perchlorate	<p>Chronic - NOEC - Fresh water Fish - Eastern mosquitofish - <i>Gambusia holbrooki</i> - Adult 7.31 mg/l [8 weeks] <u>Effect:</u> Reproduction</p> <p>Chronic - EC10 - Fresh water OECD Daphnia - Water flea - <i>Daphnia magna</i> - Neonate <u>Age:</u> <24 hours 104.23 mg/l [21 days] <u>Effect:</u> Reproduction</p> <p>Acute - LC50 - Fresh water US EPA, ASTM Crustaceans - Water flea - <i>Ceriodaphnia dubia</i> - Neonate <u>Age:</u> <8 hours 64.77235 mg/l [48 hours] <u>Effect:</u> Mortality</p> <p>Acute - LC50 - Fresh water US EPA, ASTM Fish - Fathead minnow - <i>Pimephales promelas</i> - Larvae <u>Age:</u> <24 hours 397 mg/l [96 hours] <u>Effect:</u> Mortality</p>
Conclusion/Summary [Product]	Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
sodium perchlorate	-	0.06 to 0.14 [OECD 305 B]	Low

Mobility in soil

Soil/Water partition coefficient Not available.

Other adverse effects No known significant effects or critical hazards.









Section 13. Disposal considerations

Disposal methods

The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 14. Transport information

	DOT Classification	TDG Classification	Mexico Classification
UN number	UN3211	UN3211	UN3211
UN proper shipping name	PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. (5M Sodium perchlorate solution) (sodium perchlorate)	PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. (5M Sodium perchlorate solution) (sodium perchlorate)	PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. (5M Sodium perchlorate solution) (sodium perchlorate)
Transport hazard class(es)	5.1	5.1	5.1
			
Packing group	II	II	II
Environmental hazards	No.	No.	No.
Additional information	-	-	-
	ADR/RID	IMDG	IATA
UN number	UN3211	UN3211	UN3211
UN proper shipping name	PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. (5M Sodium perchlorate solution) (sodium perchlorate)	PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. (5M Sodium perchlorate solution) (sodium perchlorate)	PERCHLORATES, INORGANIC, AQUEOUS SOLUTION, N.O.S. (5M Sodium perchlorate solution) (sodium perchlorate)
Transport hazard class(es)	5.1	5.1	5.1
			
Packing group	II	II	II
Environmental hazards	No.	No.	No.
Additional information	-	-	-
Special precautions for user	Transport within user's premises: always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.		
Transport in bulk according to IMO instruments	Not available.		
Proper shipping name		Not available.	

Section 15. Regulatory information

U.S. Federal regulations TSCA 8(a) CDR Exempt/Partial exemption: Not determined

TSCA 12(b) - Chemical export notification

Not applicable.

Clean Air Act Section 112(b) Hazardous Air Pollutants (HAPs)	Not listed
Clean Air Act Section 602 Class I Substances	Not listed
Clean Air Act Section 602 Class II Substances	Not listed
DEA List I Chemicals (Precursor Chemicals)	Not listed
DEA List II Chemicals (Essential Chemicals)	Not listed

SARA 302/304



Composition/information on ingredients

No products were found.

SARA 304 RQ Not applicable.**SARA 311/312****Classification** OXIDIZING LIQUIDS - Category 2
ACUTE TOXICITY (oral) - Category 4**Composition/information on ingredients**

Name	%	Classification
sodium perchlorate	50 - 75	OXIDIZING SOLIDS - Category 1 ACUTE TOXICITY (oral) - Category 4

State regulations

Massachusetts	The following components are listed: SODIUM PERCHLORATE
New York	None of the components are listed.
New Jersey	The following components are listed: SODIUM PERCHLORATE; PERCHLORIC ACID, SODIUM SALT
Pennsylvania	The following components are listed: PERCHLORIC ACID, SODIUM SALT

International regulations**Chemical Weapon Convention List Schedules I, II & III Chemicals**

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

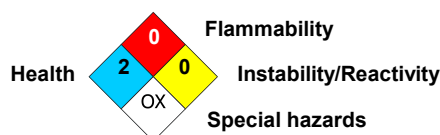
Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

United States	All components are active or exempted.
Canada inventory	All components are listed or exempted.

Section 16. Other information**National Fire Protection Association (U.S.A.)****Procedure used to derive the classification**

Classification	Justification
OXIDIZING LIQUIDS - Category 2	Expert judgment
ACUTE TOXICITY (oral) - Category 4	Calculation method

History

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Key to abbreviations

ATE = Acute Toxicity Estimate
 BCF = Bioconcentration Factor
 GHS = Globally Harmonized System of Classification and Labelling of Chemicals
 IATA = International Air Transport Association
 IBC = Intermediate Bulk Container
 IMDG = International Maritime Dangerous Goods
 LogPow = logarithm of the octanol/water partition coefficient
 MARPOL = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 N/A = Not available



References

UN = United Nations
Not available.

 Indicates information that has changed from previously issued version.

Notice to reader

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