

## Virkon® tablets

# Safety data sheet

Prepared in accordance with Regulation (EC) No. 1907/2006 (REACH)

Version 1.1 | Created: 20 May 2014 | Revised: 1 June 2015

---

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

<b>Product identifier</b>	Virkon® tablets
<b>Trade name/Brand</b>	Rely+On™ Virkon® tablets
<b>Synonym(s)</b>	None
<b>REACH number</b>	Mixture, not applicable
<b>CAS number</b>	Mixture, not applicable
<b>EC number</b>	Mixture, not applicable
<b>Relevant identified uses</b>	<p>Virkon® is a wide-spectrum disinfectant and cleaning agent, suitable for sterilising work surfaces.</p> <p>A 1% w/v solution of Virkon® should be prepared from the tablets in accordance with the instructions in the NCBE <i>Cauliflower cloning kit</i>.</p>
<b>Uses advised against</b>	This disinfectant is NOT suitable for surface-sterilising plant tissue.
<b>Supplier of the product and of this safety data sheet</b>	<p>National Centre for Biotechnology Education (NCBE) University of Reading 2 Earley Gate Whiteknights READING RG6 6AU United Kingdom</p> <p>T: 0118 9873743 F: 0118 9750140 E: NCBE@reading.ac.uk W: www.ncbe.reading.ac.uk</p>
<b>Manufacturer of the product</b>	<p>Antec International Limited Windham Road Chilton Industrial Estate SUDBURY CO10 2XD United Kingdom</p> <p>T: 01787 468 000 F: 01787 375 391 E: human-health@gbr.dupont.com W: www.relyon.dupont.com</p>
<b>Emergency telephone number</b>	0845 6006 640 (UK/Eire only)

## SECTION 2. Hazards identification

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

Eye damage (Cat. 1), H318.  
 Eye irritation (Cat. 2), H319  
 Acute toxicity (Cat.4), H302.  
 Specific target organ toxicity – single exposure (Cat. 3), Respiratory system, H335.  
 Acute aquatic toxicity (Cat. 3), H400.  
 Chronic aquatic toxicity (Cat. 3), H410.

### Label elements



### DANGER

H314 Causes severe skin burns and eye damage.  
 H302 Harmful if swallowed.  
 H410 Very toxic to aquatic life with long lasting effects.  
 P302+P352 IF ON SKIN: Wash with plenty of soap and water.  
 P305+P351 IF IN EYES: Rinse cautiously with water for several minutes.  
 +P338+P313 Remove contact lenses if present and easy to do.  
 Continue rinsing. Get immediate medical advice/attention.  
 P308+P313 IF exposed or concerned: Call a POISON CENTRE or doctor/physician.

### Other hazards

Contains dipotassium peroxodisulphate. May produce an allergic reaction.

## SECTION 3. Composition/information on ingredients

Name of component (Synonym) [CLP index number]	Weight (%)	EC (EINECS) number	CAS number	REACH registration number	Classification under Regulation (EC) No 1272/2008 [CLP]*
Pentapotassium bis(peroximonosulphate) bisulphate	40–50	274-778-7	70693-62-8	01-2119485567-22	Acute Tox. 4 (H302) Skin Corr. 1B (H314)
Polyphosphoric acids, sodium salts (Sodium polyphosphate)	20–25	272-808-3	68915-31-1	–	Skin Irrit. 2 (H315) Eye Irrit. 2 (H319)
Sodium dodecylbenzene-sulphonate (Alkylarylsulphonate, sodium salt)	10–12	246-680-4	25155-30-0	–	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Dam. 1 (H318)
Malic acid	7–10	230-022-8	6915-15-7	–	Acute Tox. 4 (H302) Skin Irrit. 2 (H315) Eye Dam. 1 (H318) STOT SE 3 (H335)
Sulphamidic acid	4–6	226-218-8	5329-14-6	–	Eye Irrit. 2 (H319) Skin Irrit. 2 (H315) Aquatic Chronic 3 (H412)
Dipotassium peroxydisulphate	<1.49	231-781-8	7727-21-1	–	Ox. Sol. 3 (H272) Acute Tox. 4 (H302) Eye Irrit. 2 (H319) STOT SE 3 (H335) Skin Irrit. 2 (H315) Resp. Sens. 1 (H334)

\* Note that these classifications refer to the pure (100%) substances.

For the full text of the safety classifications (H statements), refer to Section 16.

## SECTION 4. First aid measures

<b>General information</b>	Never give an unconscious person anything to drink. If symptoms persist or in all cases of doubt, seek medical advice.
<b>Inhalation*</b>	If irritation occurs, rinse the mouth and throat with water. Remove the victim from exposure (move them into fresh air) and lie them down. If irritation persists or there are asthma-like symptoms, seek medical advice. If the victim has stopped breathing artificial respiration and/or oxygen may be necessary. Call a doctor immediately.
<b>Skin contact</b>	Wash affected area thoroughly with water. Remove any contaminated clothing immediately and wash it before wearing again. Seek medical advice if irritation occurs.
<b>Eye contact</b>	Check for and remove contact lenses if present. Rinse opened eye immediately with running water, also wash under the eyelids, for at least 5 minutes. Seek medical advice.
<b>Ingestion</b>	Do NOT induce vomiting. Never give an unconscious person anything to drink. If the victim is conscious, they should drink plenty of water. Seek medical help immediately.
<b>Self-protection of the first aider</b>	Rinse your hands/skin with water if they come into contact with the solution.
<b>Most important symptoms and effects, both acute and delayed</b>	No information available.
<b>Indication of any immediate medical attention and special treatment</b>	If in contact with the eyes, flush with water immediately. If ingested, do not induce vomiting. In both circumstances, seek medical attention immediately.
<b>Advice to doctor</b>	No information available.

*\* This should not happen, as the product is supplied in tablet form specifically to prevent the formation of dust.*

## SECTION 5. Firefighting measures

The product itself will not burn, although it contains ~1.5% of an oxidising agent (dipotassium peroxy-disulphate) which in sufficient quantity may intensify a fire. It is unlikely, however, that users will have sufficient quantities of tablets for this to be a concern.

### **Extinguishing media**

Use carbon dioxide, dry chemical powders or foam. If water is used, control the run-off.

### **Special hazards arising from the substance or mixture**

Do not allow run-off from fire fighting to enter drains or water courses. Sulphur dioxide and chlorine may be released on decomposition.

### **Advice for firefighters**

Wear protective equipment and self-contained breathing apparatus if the quantity of the substance involved warrants it.

## SECTION 6. Accidental release measures

### **Personal precautions, protective equipment and emergency procedures**

Avoid contact with skin and eyes. Wear a lab coat, suitable protective gloves and tightly-fitting safety goggles. Avoid splashes of concentrated solution when you make up the 1% aqueous solution by adding the tablet to the water (NOT the water to the tablet).

Avoid raising an airborne dust. As the product is provided in tablet form the chances of producing dust are small: you should NOT grind the tablets up to encourage them to dissolve (they will dissolve quickly without being powdered).

In an emergency, evacuate personnel to safe areas.

### **Environmental precautions**

Discharge into the environment must be avoided: prevent leakage or spillage into drains or surface water.

### **Methods and material for containment and cleaning up**

If the quantities involved are small, wash down the drain with plenty of water to dilute the product. For larger volumes, sweep up into suitable containers for disposal according to local regulations. Avoid dust formation. After cleaning, wash away traces with water.

### **Reference to other sections**

See Section 13 for disposal instructions.

## SECTION 7. Handling and storage

### **Precautions for safe handling**

Wear a lab coat, tightly-fitting safety goggles and suitable protective gloves when preparing the *Virkon*<sup>®</sup> solution. Wash hands before breaks and immediately after handling the product.

### **Conditions for safe storage, including any incompatibilities**

Store the tablets in the sealed packages they are supplied in, in cool, dry, well-ventilated conditions. Protect from moisture and contamination and keep away from combustible material. Keep out of reach of children.

### **Specific end use(s)**

In the NCBE *Cauliflower cloning kit*, a solution of *Virkon*<sup>®</sup> is used for sterilising work surfaces.

## SECTION 8. Exposure controls/personal protection

### Control parameters

Exposure limits	No information available.
Biological limit values	No information available.
Derived no effect level	No information available.
Predicated no effect level	No information available.

### Exposure controls

Exposure limits	No information available.
Biological limit values	No information available.
Derived no effect level	<i>Pentapotassium bis(peroximonosulphate) bis(sulphate)</i> Type of application (Use): Workers Exposure routes: Skin contact Health effect: acute - systemic effects value: 80 mg/kg Type of application (Use): Workers Exposure routes: Inhalation Health effect: Acute - systemic effects value: 50 mg/kg Type of application (Use): Workers Exposure routes: Skin contact Health effect: Acute - local effects value: 0.449 mg/cm <sup>2</sup> Type of application (Use): Workers Exposure routes: Inhalation Health effect: Acute - local effects value: 50 mg/m <sup>3</sup> Type of application (Use): Workers Exposure routes: Skin contact Health effect: Long-term - systemic effects 20 mg/kg Type of application (Use): Workers Exposure routes: Inhalation Health effect: Long-term - systemic effects value: 0.28 mg/m <sup>3</sup> Type of application (Use): Workers Exposure routes: Inhalation Health effect: Long-term - local effects value: 0.28 mg/m <sup>3</sup> Type of application (Use): Consumers Exposure routes: Skin contact Health effect: Acute - systemic effects value: 40 mg/kg Type of application (Use): Consumers Exposure routes: Inhalation Health effect: Acute - systemic effects value: 25 mg/m <sup>3</sup> Type of application (Use): Consumers Exposure routes: Ingestion Health effect: Acute - systemic effects 10 mg/kg Type of application (Use): Consumers Exposure routes: Skin contact Health effect: Acute - local effects value: 0.224 mg/cm <sup>2</sup> Type of application (Use): Consumers Exposure routes: Inhalation Health effect: Acute - local effects value: 25 mg/m <sup>3</sup> Type of application (Use): Consumers Exposure routes: Skin contact Health effect: Long-term - systemic effects vlaue: 10 mg/kg Type of application (Use): Consumers Exposure routes: Inhalation Health effect: Long-term - systemic effects value: 0.14 mg/m <sup>3</sup> Type of application (Use): Consumers Exposure routes: Ingestion Health effect: Long-term - systemic effects value: 10 mg/m <sup>3</sup> Type of application (Use): Consumers Exposure routes: Inhalation Health effect: Long-term - local effects value: 0.14 mg/m <sup>3</sup> <i>Pentapotassium bis(peroximonosulphate) bis(sulphate)</i> Value: 0.022 mg/L Compartment: Fresh water Value: 0.002 mg/L Compartment: Marine water Value: 0.0109 mg/L Compartment: Intermittent use/release Value: 0.017 mg/L Compartment: Fresh water sediment Value: 0.017 mg/kg Compartment: Fresh water sediment Value: 0.00174 mg/kg Compartment: Marine sediment Value: 0.885 mg/kg Compartment: Soil Value: 108 mg/L Compartment: Sewage treatment plants

### Predicated no effect level

See Sections 6 and 7 for personal protection details.

## SECTION 9. Physical and chemical properties

<b>Physical state</b>	Solid.
<b>Appearance</b>	Pink 20 mm diameter tablets, each weighing ~5.25 g.
<b>Odour</b>	Odourless.
<b>pH</b>	2.5–3.0 when diluted in water.
<b>Flash point</b>	Does not flash.
<b>Solubility</b>	65 g per litre of water at 20 °C.

## SECTION 10. Stability and reactivity

<b>Reactivity</b>	No information available.
<b>Chemical stability</b>	When stored dry and at room temperature, the product is stable.
<b>Possibility of hazardous reactions</b>	No information available.
<b>Conditions to avoid</b>	Exposure to moisture and sunlight.
<b>Incompatible materials</b>	Strong bases. Combustible material.
<b>Hazardous decomposition products</b>	Sulphur dioxide and chlorine may be released.

## SECTION 11. Toxicological information

### Information on toxicological effects

#### Acute toxicity

##### Acute oral toxicity

LD50 /Rat: 4 123 mg/kg Method: OECD Test guideline 401  
*Pentapotassium bis(peroximonosulphate) bis(sulphate)* LD50 / Rat: 500 mg/kg  
*Dipotassium peroxodisulphate* LD50 / Rat: 1 100 mg/kg  
*Polyphosphoric acids, sodium salts* LD50 / Rat: 3 053 mg/kg

##### Acute inhalation toxicity

LC50 / 4 h Rat: 3.7 mg/L Method: Aerosol  
*Pentapotassium bis(peroximonosulphate) bis(sulphate)* LC50 / 4 h Rat: >5 mg/L

##### Acute dermal toxicity

LD50 / Rabbit: 2 200 mg/kg  
*Pentapotassium bis(peroximonosulphate) bis(sulphate)* LD50 / Rat: >2 000 mg/kg  
*Dipotassium peroxodisulphate* LD50 / Rabbit: >10 000 mg/kg

#### Irritation

##### Skin irritation

Method OECD Test guideline 404. Moderate skin irritation.  
*Pentapotassium bis(peroximonosulphate) bis(sulphate)* Rabbit. Causes burns.  
*Polyphosphoric acids, sodium salts* Unspecified animal species. Slight irritation.

##### Eye irritation

Risk of serious damage to eyes.  
*Pentapotassium bis(peroximonosulphate) bis(sulphate)* Rabbit. Corrosive.

#### Corrosivity

#### Sensitisation

Risk of serious damage to eyes.  
Bühler test. Guinea pig. Test did not cause sensitisation by skin contact.  
Maximisation test. Guinea pig. Test did not cause sensitisation by skin contact.  
*Pentapotassium bis(peroximonosulphate) bis(sulphate)*.  
Did not cause sensitisation of laboratory animals. There are rare or inconclusive reports of human skin sensitisation. There are no reports of human respiratory sensitisation.

#### Repeated dose toxicity

*Pentapotassium bis(peroximonosulphate) bis(sulphate)*.

#### Carcinogenicity

No adverse effect has been observed in chronic toxicity tests.  
*Pentapotassium bis(peroximonosulphate) bis(sulphate)*. No information available.  
*Polyphosphoric acids, sodium salts*. Animal testing did not show any carcinogenic effects.  
*Malic acid*. Not classifiable as a human carcinogen.  
*Dipotassium peroxodisulphate*. No data available.

<b>Mutagenicity</b>	<i>Pentapotassium bis(peroximonosulphate) bis(sulphate)</i> Animal testing did not show any mutagenic effects. <i>Polyphosphoric acids, sodium salts</i> Tests on bacterial or mammalian cell cultures did not show any mutagenic effects. <i>Malic acid</i> Animal testing did not show any mutagenic effects. <i>Dipotassium peroxodisulphate</i> Tests on bacterial or mammalian cell cultures did not show any mutagenic effects.
<b>Toxicity for reproduction</b>	No toxicity to reproduction reported.

## SECTION 12. Ecological information

<b>Toxicity</b>	<i>Pentapotassium bis(peroximonosulphate) bis(sulphate)</i> <b>Toxicity to fish</b> LC50 / 96 h / <i>Oncorhynchus mykiss</i> (Rainbow trout): 53 mg / L LC50 / 96 h / <i>Cyprinodon variegatus</i> (Sheepshead minnow): 1.09 mg / L <b>Toxicity to aquatic invertebrates</b> EC50 / 48 h / <i>Daphnia magna</i> : 3.5 mg / L. <b>Toxicity to aquatic plants</b> ErC50 / 72 h / Algae: > 1 mg / L.
<b>Persistence and degradability</b>	Expected to be biodegradable.
<b>Bioaccumulative potential</b>	No information available.
<b>Mobility in soil</b>	No information available.
<b>Results of PBT and vPVB assessment</b>	No information available.
<b>Other adverse effects</b>	None known.

## SECTION 13. Disposal considerations

<b>Waste from residues/unused product</b>	Dispose of as special waste in compliance with local and national regulations. The product should not be allowed to enter drains, water courses or the soil.
<b>Contaminated packaging</b>	If recycling is not practicable, dispose of in compliance with local regulations.

## SECTION 14. Transport information

<b>IMDG (Sea transport)</b>	Not regulated.
<b>ADN (Inland waterways)</b>	Not regulated.
<b>ADR (Road transport)</b>	Not regulated.
<b>RID (Rail transport)</b>	Not regulated.
<b>ICAO/IATA DGR (Air transport)</b>	Not regulated.

## SECTION 15. Regulatory information

### Safety, health and environmental regulations/legislation specific for the substance or mixture

No information available.

### Chemical Safety Assessment

No information available.

## SECTION 16. Other information

### Full text of GHS hazard statements

H272	May intensify fire; oxidiser.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H334	May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335	May cause respiratory irritation.
H412	Harmful to aquatic life with long lasting effects.

Note that this Safety Data Sheet refers to the *Virkon*<sup>®</sup> tablets, not to the dilute aqueous solution that is made from them.

Usage and handling instructions are given in this Safety Data Sheet and in the Teacher's guide which accompanies the NCBE *Cauliflower cloning kit*. This can be downloaded from the NCBE's Web site: [www.ncbe.reading.ac.uk/ptc](http://www.ncbe.reading.ac.uk/ptc)

The information given in this Safety Data Sheet is based on the present state of our knowledge.

This Safety Data Sheet has been compiled and is solely intended for this product.

This Safety Data Sheet was revised on 1 June 2015, when the older (67/548/EEC [DSD]) safety classifications were deleted.

**END OF SAFETY DATA SHEET**