



Rely+On™ Virkon® Tablets

Version 3.0

Revision Date 21.03.2013

Ref. 130000028733

This SDS adheres to the standards and regulatory requirements of Great Britain and may not meet the regulatory requirements in other countries.

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name : Rely+On™ Virkon® Tablets

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

Use of the Substance/Mixture : Disinfectant

1.3. Details of the supplier of the safety data sheet

Company : Antec International Limited
Windham Road
Chilton Industrial Estate
Sudbury / Suffolk - CO10 2XD
United Kingdom

Telephone : +44 (0) 1787 377 305

Telefax : +44 (0) 1787 310 846

E-mail address : sds-support@che.dupont.com

1.4. Emergency telephone number

Emergency telephone number : +44 (0) 8456 006 640

Remarks : Antec International Limited is a wholly owned subsidiary of Dupont (UK) Ltd.

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Irritant R38: Irritating to skin.
R41: Risk of serious damage to eyes.
Dangerous for the R52: Harmful to aquatic organisms.
environment

2.2. Label elements



Irritant

R38 Irritating to skin.
R41 Risk of serious damage to eyes.
R52 Harmful to aquatic organisms.



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Sensitising components Contains: Dipotassium peroxodisulphate / Contains/ May produce an allergic reaction.

S 2 Keep out of the reach of children.
S24/25 Avoid contact with skin and eyes.
S26 In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
S37/39 Wear suitable gloves and eye/face protection.

2.3. Other hazards

no data available

SECTION 3: Composition/information on ingredients

3.1. Substances

not applicable

3.2. Mixtures

Registration number	Classification according to Directive 67/548/EEC	Classification according to Regulation (EU) 1272/2008 (CLP)	Concentration
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Pentapotassium bis(peroxymonosulphate) bis(sulphate) (CAS-No.70693-62-8) (EC-No.274-778-7)

01-2119485567-22	Xn;R22 C;R34 R52	Acute Tox. 4; H302 Skin Corr. 1B; H314 Eye Dam. 1; H318 Aquatic Chronic 3; H412	40 - 55 %
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Malic acid (CAS-No.6915-15-7) (EC-No.230-022-8)

	Xn;R22 Xi;R36/37/38	Eye Irrit. 2; H319 STOT SE 3; H335 Acute Tox. 4; H302 Skin Irrit. 2; H315	20 - 25 %
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Sulphamidic acid (CAS-No.5329-14-6) (EC-No.226-218-8)

	Xi;R36/38 R52/53	Eye Irrit. 2; H319 Skin Irrit. 2; H315 Aquatic Chronic 3; H412	4 - 6 %
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Sodium dodecylbenzenesulfonate (CAS-No.25155-30-0) (EC-No.246-680-4)

	Xn;R22 Xi;R36/37/38	Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Irrit. 2; H319 STOT SE 3; H335	3 - 5 %
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Dipotassium peroxodisulphate (CAS-No.7727-21-1) (EC-No.231-781-8)



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	O;R 8 Xn;R22 Xi;R36/37/38 R42/43	Ox. Sol. 3; H272 Acute Tox. 4; H302 Skin Irrit. 2; H315 Eye Irrit. 2; H319 Resp. Sens. 1; H334 Skin Sens. 1; H317 STOT SE 3; H335	< 1.56 %
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The above products are REACH compliant; Registration number(s) may not be provided because substance(s) are exempted, not yet registered under REACH or are registered under another regulatory process (biocide uses, plant protection products), etc.

For the full text of the R-phrases mentioned in this Section, see Section 16.
For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

- General advice : Never give anything by mouth to an unconscious person. When symptoms persist or in all cases of doubt seek medical advice.
- Inhalation : Remove from exposure, lie down. If victim has stopped breathing: Artificial respiration and/or oxygen may be necessary. Consult a physician.
- || Skin contact : Wash off immediately with plenty of water. Remove contaminated clothing and shoes. Wash contaminated clothing before re-use. Consult a physician.
- || Eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Call a physician.
- || Ingestion : Do NOT induce vomiting. If a person vomits when lying on his back, place him in the recovery position. Drink 1 or 2 glasses of water. Call a physician immediately.

4.2. Most important symptoms and effects, both acute and delayed

- || Symptoms : Inhalation may provoke the following symptoms:, Irritation, Oedema, Nose bleeding
- || : Skin contact may provoke the following symptoms:, Irritation, Discomfort, Itching, Redness, Swelling of tissue, Allergic reactions, Rash
- || : Eye contact may provoke the following symptoms:, Irritation, Redness, Discomfort, Lachrymation, Pain, Ulceration
- || : Ingestion may provoke the following symptoms:, Irritation, Nausea, Vomiting, Diarrhoea

4.3. Indication of any immediate medical attention and special treatment needed

- Treatment : Treat symptomatically.



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SECTION 5: Firefighting measures

5.1. Extinguishing media

|| Suitable extinguishing media : The product itself does not burn., Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

|| Extinguishing media which shall not be used for safety reasons : Carbon dioxide (CO₂)

5.2. Special hazards arising from the substance or mixture

|| Specific hazards during firefighting : Do not allow run-off from fire fighting to enter drains or water courses.
: Hazardous decomposition products (see also section 10)

5.3. Advice for firefighters

Special protective equipment for firefighters : Wear self-contained breathing apparatus and protective suit.

Further information : The product itself does not burn.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions : Evacuate personnel to safe areas. Use personal protective equipment.

6.2. Environmental precautions

Environmental precautions : Do not flush into surface water.

6.3. Methods and materials for containment and cleaning up

Methods for cleaning up : Sweep up and shovel into suitable containers for disposal. Avoid dust formation. After cleaning, flush away traces with water.

Other information : Dispose of in accordance with local regulations.

6.4. Reference to other sections

For personal protection see section 8., For disposal instructions see section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling : Avoid dust formation in confined areas. Do not breathe spray mist. Provide adequate ventilation. Avoid contact with skin and eyes. For personal protection see section 8.



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7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage areas and containers : Protect from contamination. Keep containers dry and tightly closed to avoid moisture absorption and contamination. Store in original container.

Advice on common storage : Keep away from: Combustible material Strong bases

Other data : Stable under recommended storage conditions.

7.3. Specific end use(s)

no data available

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

If sub-section is empty then no values are applicable.

Derived No Effect Level (DNEL)

- Pentapotassium bis(peroxymonosulphate) bis(sulphate)
 - : Type of Application (Use): Workers
Exposure routes: Skin contact
Health Effect: Acute - systemic effects
Value: 80 mg/kg body weight (bw) /day
 - : Type of Application (Use): Workers
Exposure routes: Inhalation
Health Effect: Acute - systemic effects
Value: 50 mg/m³
 - : Type of Application (Use): Workers
Exposure routes: Skin contact
Health Effect: Acute - local effects
Value: 0.449 mg/cm²
 - : Type of Application (Use): Workers
Exposure routes: Inhalation
Health Effect: Acute - local effects
Value: 50 mg/m³
 - : Type of Application (Use): Workers
Exposure routes: Skin contact
Health Effect: Long-term - systemic effects
Value: 20 mg/kg body weight (bw) /day
 - : Type of Application (Use): Workers
Exposure routes: Inhalation
Health Effect: Long-term - systemic effects
Value: 0.28 mg/m³
 - : Type of Application (Use): Workers



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Exposure routes: Inhalation
Health Effect: Long-term - local effects
Value: 0.28 mg/m³

: Type of Application (Use): Consumers
Exposure routes: Skin contact
Health Effect: Acute - systemic effects
Value: 80 mg/kg body weight (bw) /day

: Type of Application (Use): Consumers
Exposure routes: Inhalation
Health Effect: Acute - systemic effects
Value: 25 mg/m³

: Type of Application (Use): Consumers
Exposure routes: Ingestion
Health Effect: Acute - systemic effects
Value: 10 mg/kg body weight (bw) /day

: Type of Application (Use): Consumers
Exposure routes: Skin contact
Health Effect: Acute - local effects
Value: 0.224 mg/cm²

: Type of Application (Use): Consumers
Exposure routes: Inhalation
Health Effect: Acute - local effects
Value: 25 mg/m³

: Type of Application (Use): Consumers
Exposure routes: Skin contact
Health Effect: Long-term - systemic effects
Value: 10 mg/kg body weight (bw) /day

: Type of Application (Use): Consumers
Exposure routes: Inhalation
Health Effect: Long-term - systemic effects
Value: 0.14 mg/m³

: Type of Application (Use): Consumers
Exposure routes: Ingestion
Health Effect: Long-term - systemic effects
Value: 10 mg/kg body weight (bw) /day

: Type of Application (Use): Consumers
Exposure routes: Inhalation
Health Effect: Long-term - local effects
Value: 0.14 mg/m³

Predicted No Effect Concentration (PNEC)

- Pentapotassium bis(peroxymonosulphate) bis(sulphate) : Value: 0.022 mg/l
Compartment: Fresh water
- : Value: 0.002 mg/l



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- 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

8.2. Exposure controls

- Engineering measures : Provide local exhaust ventilation when handling material in bulk.
- Eye protection : Tightly fitting safety goggles
- Hand protection :
Rubber gloves
- Skin and body protection : Wear as appropriate: Apron Boots Remove and wash contaminated clothing before re-use.
- Hygiene measures : Wash hands before breaks and immediately after handling the product. Regular cleaning of equipment, work area and clothing.
- Respiratory protection : Provide adequate ventilation. In case of insufficient ventilation, wear suitable respiratory equipment. Half mask with combination filter A1/P1 (EN 141)

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

- Form : tablet
- Colour : pink
- Odour : none
- pH : 2.5 - 3.0
- Flash point : does not flash
- Water solubility : 65 g/l at 20 °C



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9.2. Other information

no data available

SECTION 10: Stability and reactivity

10.1. Reactivity : Stable under recommended storage conditions.

10.2. Chemical stability : Stable under normal conditions.

10.3. Possibility of hazardous reactions : Stable under recommended storage conditions.

10.4. Conditions to avoid : Exposure to moisture.

10.5. Incompatible materials : Strong bases
Combustible material

10.6. Hazardous decomposition products : Sulphur dioxide
Chlorine
Hypochlorite

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute oral toxicity

LD50 / rat : 4,123 mg/kg
Method: OECD Test Guideline 401

- Pentapotassium bis(peroxymonosulphate) bis(sulphate)
LD50 / rat : 500 mg/kg
Gastrointestinal effects
- Malic acid
LD50 / mouse : 1,600 mg/kg
- Dipotassium peroxodisulphate
LD50 / rat : 1,130 mg/kg
Method: OECD Test Guideline 401

Acute inhalation toxicity

LC50 / 4 h rat : 3.7 mg/l
Method: aerosol

- Pentapotassium bis(peroxymonosulphate) bis(sulphate)
LC50 / 4 h rat : > 5 mg/l
Hearing disturbances Nasal or ocular discharge
- Malic acid
LC50 / 4 h rat : 11.4 mg/l



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The toxicological data has been taken from products of similar composition.

- Dipotassium peroxodisulphate
LC50 / 4 h rat : > 10.7 mg/l
Respiratory tract irritation Dust

Acute dermal toxicity

LD50 / rabbit : 2,200 mg/kg

- Pentapotassium bis(peroxymonosulphate) bis(sulphate)
LD50 / rat : > 2,000 mg/kg
Adverse body weight effects
- Malic acid
LD50 / rabbit : 20,000 mg/kg
The toxicological data has been taken from products of similar composition.
- Dipotassium peroxodisulphate
LD50 / rabbit : > 10,000 mg/kg

Skin irritation

Result: Mild skin irritation
Method: OECD Test Guideline 404
Moderate skin irritation

- Pentapotassium bis(peroxymonosulphate) bis(sulphate)
rabbit
Classification: Corrosive
Result: Causes burns.
- Malic acid
rabbit
Classification: Irritating to skin.
Result: Skin irritation
- Dipotassium peroxodisulphate
rabbit
Classification: Irritating to skin.
Result: Skin irritation
Method: OECD Test Guideline 404

Eye irritation

Risk of serious damage to eyes.

- Pentapotassium bis(peroxymonosulphate) bis(sulphate)
rabbit
Classification: Corrosive
Result: Risk of serious damage to eyes.
- Malic acid
rabbit



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Classification: Irritating to eyes.
Result: Severe eye irritation

Sensitisation

guinea pig Buehler Test

Result: Animal test did not cause sensitization by skin contact.

guinea pig Maximisation Test

Result: Animal test did not cause sensitization by skin contact.

- Pentapotassium bis(peroxymonosulphate) bis(sulphate)
guinea pig
Classification: Not a skin sensitizer.
Result: Did not cause sensitisation on laboratory animals.
There are rare or inconclusive reports of human skin sensitization. There are no reports of human respiratory sensitization.
- Dipotassium peroxodisulphate
human
Classification: May cause sensitisation by inhalation.
Result: May cause sensitisation by inhalation.

mouse Local lymph node test
Classification: May cause sensitisation by skin contact.
Result: May cause sensitisation by skin contact.
Method: OECD Test Guideline 429

Repeated dose toxicity

- Malic acid
Oral - feed rat
No toxicologically significant effects were found.
- Dipotassium peroxodisulphate
Oral rat
NOAEL: 131.5 mg/kg
Method: OECD Test Guideline 407
No toxicologically significant effects were found.

Mutagenicity assessment

- Pentapotassium bis(peroxymonosulphate) bis(sulphate)
Animal testing did not show any mutagenic effects.
- Malic acid
Animal testing did not show any mutagenic effects.
- Dipotassium peroxodisulphate
Animal testing did not show any mutagenic effects.

Carcinogenicity assessment

- Pentapotassium bis(peroxymonosulphate) bis(sulphate)



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no data available

- Malic acid
Not classifiable as a human carcinogen.
- Dipotassium peroxodisulphate
Animal testing did not show any carcinogenic effects.

Toxicity to reproduction assessment

- Pentapotassium bis(peroxymonosulphate) bis(sulphate)
no data available
- Malic acid
No toxicity to reproduction
- Dipotassium peroxodisulphate
No toxicity to reproduction

Assessment teratogenicity

- Dipotassium peroxodisulphate
No toxicity to reproduction

SECTION 12: Ecological information

12.1. Toxicity

Toxicity to fish

- Pentapotassium bis(peroxymonosulphate) bis(sulphate)
LC50 / 96 h / *Cyprinodon variegatus* (sheepshead minnow): 1.09 mg/l
- Dipotassium peroxodisulphate
LC50 / 96 h / *Oncorhynchus mykiss* (rainbow trout): 76.3 mg/l
Method: US EPA Test Guideline OPP 72-1
Information given is based on data obtained from similar substances.

Toxicity to aquatic plants

- Pentapotassium bis(peroxymonosulphate) bis(sulphate)
ErC50 / 72 h / *Selenastrum capricornutum* (green algae): > 1 mg/l

NOEC / *Selenastrum capricornutum* (green algae): 0.5 mg/l
- Dipotassium peroxodisulphate
NOEC / 72 h / *Pseudokirchneriella subcapitata* (green algae): 39.2 mg/l
Method: OECD Test Guideline 201
Information given is based on data obtained from similar substances.

Toxicity to aquatic invertebrates

- Pentapotassium bis(peroxymonosulphate) bis(sulphate)



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EC50 / 48 h / Daphnia: 3.5 mg/l

- Malic acid
EC50 / 48 h / Daphnia magna (Water flea): 240 mg/l
- Dipotassium peroxodisulphate
EC50 / 48 h / Daphnia magna (Water flea): 120 mg/l
Method: US EPA Test Guideline OPP 72-2
Information given is based on data obtained from similar substances.

Chronic toxicity to fish

- Pentapotassium bis(peroxymonosulphate) bis(sulphate)
NOEC / Cyprinodon variegatus (sheepshead minnow): 0.222 mg/l

Chronic toxicity to aquatic Invertebrates

- Pentapotassium bis(peroxymonosulphate) bis(sulphate)
NOEC / Americamysis bahia (mysid shrimp): 0.267 mg/l

12.2. Persistence and degradability

Biodegradability

Expected to be biodegradable

- Pentapotassium bis(peroxymonosulphate) bis(sulphate)
Readily biodegradable.
- Malic acid
Readily biodegradable.
- Dipotassium peroxodisulphate
Readily biodegradable.

12.3. Bioaccumulative potential

Bioaccumulation

- Pentapotassium bis(peroxymonosulphate) bis(sulphate)
Bioaccumulation is unlikely.
- Malic acid
Accumulation in aquatic organisms is unlikely.

12.4. Mobility in soil

no data available

12.5. Results of PBT and vPvB assessment

no data available

12.6. Other adverse effects



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no data available

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Product : 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.

Contaminated packaging : If recycling is not practicable, dispose of in compliance with local regulations.

SECTION 14: Transport information

ADR

- 14.1. UN number: not applicable
14.2. UN proper shipping name: not applicable
14.3. Transport hazard class(es): not applicable
14.4. Packing group: not applicable
14.5. Environmental hazards: none
14.6. Special precautions for user:
Not classified as dangerous in the meaning of transport regulations.

IATA_C

- 14.1. UN number: not applicable
14.2. UN proper shipping name: not applicable
14.3. Transport hazard class(es): not applicable
14.4. Packing group: not applicable
14.5. Environmental hazards: none
14.6. Special precautions for user:
Not classified as dangerous in the meaning of transport regulations.

IMDG

- 14.1. UN number: not applicable
14.2. UN proper shipping name: not applicable
14.3. Transport hazard class(es): not applicable
14.4. Packing group: not applicable
14.5. Environmental hazards: none
14.6. Special precautions for user:
Not classified as dangerous in the meaning of transport regulations.

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

not applicable

SECTION 15: Regulatory information

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

Other regulations : Take note of Directive 98/24/EC on the protection of the health and safety of workers from the risks related to chemical agents at work.

15.2. Chemical Safety Assessment

In the EU, this product falls under the Directive on biocide products 98/8/EC.



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SECTION 16: Other information

Text of R-phrases mentioned in Section 3

R 8	Contact with combustible material may cause fire.
R22	Harmful if swallowed.
R34	Causes burns.
R36/37/38	Irritating to eyes, respiratory system and skin.
R36/38	Irritating to eyes and skin.
R42/43	May cause sensitisation by inhalation and skin contact.
R52	Harmful to aquatic organisms.
R52/53	Harmful to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Full text of H-Statements referred to under section 3.

H272	May intensify fire; oxidiser.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H317	May cause an allergic skin reaction.
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.

Further information

No ES Annex has been created as to the best of our knowledge and information available at the date of its publication no Exposure Scenario information is currently available for the substances within the mixture. Please see Sections 1 to 16 of the Safety Data Sheet.

Significant change from previous version is denoted with a double bar.

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The above information relates only to the specific material(s) designated herein and may not be valid for such material(s) used in combination with any other materials or in any process or if the material is altered or processed, unless specified in the text.