

Safety Data Sheet

according to Federal Register / Vol. 77, No. 58 / Monday, March 26, 2012 / Rules and Regulations Version: 1.1 Date of issue: 09/10/2016 Revision date: 09/10/2016

SECTION 1: Identification 1.1. Mentification Yeduct form : Mature Name : WS WAVECAL Solution - 8 components; K 50mg/l ; La 10mg/l ; Li 10mg/l ; Mn 10mg/l ; Ne 10mg/l ; St 10mg/l ; Ca 1mg/l in HNO3 2% Equivalent to Perkin Elmer Ref: NS02246 Product code : Cool151 1.2. Relevant identified uses of the substance or mixture and uses advised against Use of the substance/mixture : Certified reference material for laboratory use 1.3. Details of the subplier of the safety data sheet Spectracer UK Ltd. Second Floor, 27 Cloudester Place, London, WH www spectracer con uk We: www spectracer con uk Sectron 2: Lazard(s) identification 2.1. Classification of the substance or mixture GHSUS classification Stin corresolutivitation 1315 Category 2 Serious eye H319 damage bye initation : Warning Hazard pictograms (GHS-US) : Warning Hazard pictograms (GHS-US) : Warning <t< th=""><th></th><th></th><th></th><th></th></t<>				
Product form : Mxime : : Mxime : : Mxime : : Mxime : : : : : : : : : <	SECTION 1: Identif	ication		
Name : VIS WAVECAL Solution - 8 components; F 8 Compd; : La Tomgd; : Li Tomgd; : Mi 10mgi; : Namosi,				
10mg/1: Sr 10mg/1: Ga 1mg/1: Ca 1mg/1: Ca 1mg/1 in HNO3 2% Equivalent to Perkin Elmer Ref: N303246 Product code : E00151 1.2. Relevant identified uses of the substance or mixture and uses advised against Use of the substance/mixture Use of the substance/mixture : Cartified reference material for laboratory use 1.3. Details of the supplier of the safety data sheet Spectracer UK Ltd. Spectracer UK Ltd. Spectracer Origon State Stat	Product form		: Mixture	
12. Relevant identified uses of the substance or mixture and uses advised against Use of the substance/mixture : Contified reference material for laboratory use 1.3. Details of the supplier of the safety data sheet Spectrace UK Ltd. Second Floor, 27 Cloucester Place, London, London, WIU BHU, United Kingdom. Tel: +44 (0) 207 193 3114 Fax:+44 (0) 203 432 4686 Email: contract@gspectracer.cout. Web: www spectracer.com Web: www spectracer.com Web: www spectracer.com Web: www spectracer.com Web: www spectracer.com For Chemical Emergencies Only Liewellyn (Safety Advisors) Europe Ltd Emergency telephone number Emergency number : Tel: +44(0)1933445260 Option 1. Language: English only. For Chemical Emergencies Only Liewellyn (Safety Advisors) Europe Ltd Stacational Composition initiation H315 Category 2 Selfour probleme finder : Tel: +44(0)1933445260 Option 1. Language: English only. Selfour probleme finder : Tel: +44(0)1933445260 Option 1. Language: English only. Selfour probleme finder : Selfour probleme finder : Selfour probleme finder Selfour probl	Name		10mg/l ; Sr 10mg/l ; Ba 1mg/l ; Ca 1mg/l in HNO3 2% Equivalent to Perkin Elmer Ref:	Na
Use of the substance/mixture : Certified reference material for laboratory use 1.3. Details of the supplier of the safety data sheet Second Floor, Second Floor, Second Floor, Second Floor, Second Floor, Tel: +44 (0) 207 193 9114 Fas: +44 (0) 193 3445260 Option 1. Language: English only. For Chemical Emergencies Only Lewellyn (Safety Advisors) Europe Ltd SECTION 2: Hazard(s) identification Stin corrosion/intation of the substance or mixture GHS-US classification Shin corrosion/intation f H315 Category 2 Serious eye H319 damage/eye intation Category 2 Serious eye H319 damage/eye intation Category 2 Signal word (GHS-US) : :	Product code		: EQ0151	
1.3. Details of the supplier of the safety data sheet Spectracer UK Ltd. Spectracer UK Ltd. Spectracer UK Ltd. Second Floor, 27 Gloucester Place, London, W1U BHU, United Kingdom. Tel: +44 (0) 207 133 9114 Fax: +44 (0) 203 432 4886 Email: contard/spectracer.co.uk Web: www.spectracer.co.uk Web: symw.spectracer.co.uk Sectors symmetric symmetri	1.2. Relevant ident	ified uses of the subst	ance or mixture and uses advised against	
Spectracer UK Ltd. Second Floor, Second Floor, YT Gloucester Place, London, Will BHU, United Kingdom. Tel: +44 (0) 203 432 4986 Email: contract@spectracer.co.uk West Spectracer.com Will BHU, Tel: +44 (0) 203 432 4986 Email: contract@spectracer.co.uk West Spectracer.com Vest www.spectracer.com For Chemical Emergencies Only Liewellyn (Safety Advisors) Europe Ltd Sector Chemical Emergencies Only Stection of the substance or mixture GHS-US classification Skin corrosion/irritation H315 Category 2 H319 Category 2 GHS-US classification Signal word (CHS-US) : Warning Hazard statements (CHS-US) : Warning Hazard statements (CHS-US) : H315 - Causes skin irritation Precautionary statements (GHS-US) : H315 - Causes skin irritation Precautionary statements (GHS-US) : P220- Vear pr	Use of the substance/mix	ture	: Certified reference material for laboratory use	
Sécond Floor, 27 Glucester Place, London, W1U 8HU, United Kingdom. Tel: +44 (0) 207 193 9114 Fax: +44 (0) 208 492 4886 Email: contact@spectracer.co.uk Web: <u>www.spectracer.co.uk</u> Web: <u>www.spectracer.co.uk</u> Web: <u>www.spectracer.co.uk</u> Web: <u>www.spectracer.co.uk</u> Tel: +44 (0) 1933445280 Option 1. Language: English only. For Chemical Emergencies Only Lleweilyn (Safety Advisors) Europe Ltd SECTION 2: Hazard(s) Identification 2.1. Classification of the substance or mixture GH5-US classification Skin corrosion/irritation H315 Category 2 Serious eye H319 damage(eye irritation Category 2A Full text of H statements : see section 16 2.2. Label elements GH5-US labeling Hazard pictograms (GHS-US) : Warning Hazard pictograms (GHS-US) : H315 - Causes skin irritation H319 - Causes serious eye intritation H319 - Causes serious eye intritation H319 - Causes serious eye intritation Precautionary statements (GHS-US) : P280 - Wear protective gloves/protective icothing/eye protection/face protection P302+P325 - If on skin: Wash with pilenty of water. P305+P323 - If on skin: Wash with pilenty of water. P305+P333 - If for skin: Wash with pilenty of water. P305+P331 - If eye irritation occurs: Get medical advice/attention P337+P313 - If eye irritation occurs: Get medical advice/attention		supplier of the safety d	lata sheet	
Fax:+44 (0) 203 432 4886 Email: condard/dspectracer.co.uk Web: www.spectracer.co.uk Web: www.spectracer.co.uk Sector of the substance or mixture SECTION 2: Hazard(s) identification 2.1. Classification of the substance or mixture GHS-US classification Skin corrosion/irritation Raid conduction Serious eye H319 damage/eye irritation Category 2 Serious eye H319 damage/eye irritation Category 2A Full text of H statements : see section 16 2.2. Label elements GHS-US labeling Hazard pictograms (GHS-US) : Warning Hazard statements (GHS-US) : Warning Hazard statements (GHS-US) : P280 - Wear protective gloves/protective clothing/eye protection/face protection P302+P32 - if no skin: Wash with plenty of water/ P305+P31+F383 - if no skin: Wash with plenty of water/ P305+P31+F31 - if no skin: Wash with plenty of water/ P305+P31+P313 - if no year: Singer advice/attention P337+P313 - if eye irritation persists: Get medical advice/attention P337+P313 - if eye irritation persists: Get medical advice/attention P337+P313 - if eye irritation persists: Get medical advice/attention P337+P313 - if eye irritation persists: Get medical advice/attention P337+P313 - if skin relation persists: Get medical advice/attention P337+	Second Floor, 27 Gloucester Place, London, W1U 8HU, United Kingdom.			
Emergency number : Tel: +44(0)1933445260 Option 1. Language: English only. For Chemical Emergencies Only Llewellyn (Safety Advisors) Europe Ltd SECTION 2: Hazard(s) identification 2.1. Classification of the substance or mixture GHS-US classification Skin corrosion/irritation H315 Category 2 Serious eye H319 damage/eye irritation Category 2A Full text of H statements : see section 16 2.2. Label elements GHS-US labeling Hazard pictograms (GHS-US) : Warning Hazard pictograms (GHS-US) : Warning Hazard statements (GHS-US) : Warning Hazard statements (GHS-US) : P280 · Wear protective gloves/protective clothing/eye protection/face protection Precautionary statements (GHS-US) : P280 · Wear protective gloves/protective clothing/eye protection/face protection Precautionary statements (GHS-US) : P280 · Wear protective gloves/protective clothing/eye protection Precautionary statements (GHS-US) : P280 · Wear protective gloves/protective clothing/eye protection Precautionary statements (GHS-US) : P280 · Wear protective gloves/protective clothing/eye protection Precautionary statements (GHS-US) : P280 · Wear protective gloves/protective clothing/eye protection P337+P313 · If eye irritation necurs: Get medical advice/attention P337+P313 · If eye irritation persists: Get medical advice/attention	Fax:+44 (0) 203 432 4686 Email: contact@spectrace	∂ <u>er.co.uk</u>		
For Chemical Emergencies Only Llewellyn (Safety Advisors) Europe Ltd SECTION 2: Hazard(s) identification 2.1. Classification of the substance or mixture GHS-US classification Skin corrosion/irritation H315 Category 2 Serious eye H319 damage/eye irritation Category 2A Full text of H statements : see section 16 2.2. Label elements GHS-US labeling Hazard pictograms (GHS-US) : : Warning Hazard statements (GHS-US) : : Warning Hazard statements (GHS-US) : : Precautionary statements (GHS-US) : : Precautionary statements (GHS-US) : : : : : : : : : : : : : : : : : : : : : :		ephone number		
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P362+P364 - Take off contaminated clothing and wash it before reuse

2.3. Other hazards No additional information available Unknown acute toxicity (GHS US) 24 Not applicable **SECTION 3: Composition/Information on ingredients** Substance 3.1. Not applicable 3.2. **Mixture** Name Product identifier % **GHS-US classification** nitric acid (CAS No) 7697-37-2 1 - 5 Ox. Liq. 3, H272 Met. Corr. 1, H290 Skin Corr. 1A, H314 manganese(II)nitrate (CAS No) 10377-66-9 < 0.1 Skin Irrit 2 H315 Eye Irrit. 2A, H319 (CAS No) 10022-31-8 < 0.1 Acute Tox. 4 (Oral), H302 barium nitrate Full text of hazard classes and H-statements : see section 16 **SECTION 4: First aid measures** 4.1. **Description of first aid measures** First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing. Wash skin with plenty of water. Take off contaminated clothing. If skin irritation occurs: Get First-aid measures after skin contact medical advice/attention. First-aid measures after eye contact : Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention. First-aid measures after ingestion : Call a poison center/doctor/physician if you feel unwell. Most important symptoms and effects, both acute and delayed 4.2. Symptoms/injuries after skin contact · Irritation Symptoms/injuries after eye contact : Eye irritation. 4.3. Indication of any immediate medical attention and special treatment needed Treat symptomatically. SECTION 5: Firefighting measures **Extinguishing media** 5.1. Suitable extinguishing media : Water spray. Dry powder. Foam. Carbon dioxide. 5.2. Special hazards arising from the substance or mixture Reactivity : The product is non-reactive under normal conditions of use, storage and transport. 5.3. Advice for firefighters Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing. SECTION 6: Accidental release measures 6.1. Personal precautions, protective equipment and emergency procedures 6.1.1. For non-emergency personnel Emergency procedures : Ventilate spillage area. Avoid contact with skin and eyes. For emergency responders 6.1.2. Protective equipment : Do not attempt to take action without suitable protective equipment. For further information refer to section 8: "Exposure controls/personal protection". **Environmental precautions** 6.2. Avoid release to the environment.

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6.3. Methods and material for contain	ment and cleaning up
Methods for cleaning up	: Take up liquid spill into absorbent material.
Other information	: Dispose of materials or solid residues at an authorized site.
6.4. Reference to other sections	
For further information refer to section 13.	
SECTION 7: Handling and storage	
7.1. Precautions for safe handling	
Precautions for safe handling	: Ensure good ventilation of the work station. Wear personal protective equipment. Avoid contact with skin and eyes.
Hygiene measures	: Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Wash contaminated clothing before reuse.
7.2. Conditions for safe storage, inclu	ding any incompatibilities

Storage conditions

: Store in a well-ventilated place. Keep cool.

SECTION 8: Exposure controls/personal protection

8.1. **Control parameters**

nitric acid (7697-37	7-2)				
ACGIH	ACGIH TWA (ppm)	2 ppm			
ACGIH	ACGIH STEL (ppm)	4 ppm			
ACGIH	Remark (ACGIH)	URT & eye irr; dental erosion			
OSHA	OSHA PEL (TWA) (mg/m ³)	5 mg/m³			
OSHA OSHA PEL (TWA) (ppm)		2 ppm			
manganese(II)nitrate (10377-66-9)					
ACGIH	ACGIH TWA (mg/m ³)	0.02 mg/m³			
ACGIH	Remark (ACGIH)	CNS impair; A4			
barium nitrate (10022-31-8)					
ACGIH	ACGIH TWA (mg/m³)	0.5 mg/m³ (Barium, soluble compounds, as Ba; USA; Time-weighted average exposure limit 8 h; TLV - Adopted Value)			
OSHA	OSHA PEL (TWA) (mg/m ³)	0.5 mg/m ³			

8.2. **Exposure controls** Appropriate engineering controls

Personal protective equipment

- : Ensure good ventilation of the work station.
- : Avoid all unnecessary exposure. Gloves. Safety glasses. Protective clothing.



Hand protection

- Eye protection
- Skin and body protection

Respiratory protection

Environmental exposure controls

:	Protective gloves.	
	Safety glasses	

- : Wear suitable protective clothing.
- In case of insufficient ventilation, wear suitable respiratory equipment.
- : Avoid release to the environment.

SECTION 9: Physical and chemical properties Information on basic physical and chemical properties 9.1. Physical state : Liquid

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Color	:	Mixture contains one or more component(s) which have the following colour(s): colorless to yellow On exposure to light: red-brown Colourless-white White or colourless Colourless to white Colourless to light rose White Colorless
Odor	:	There may be no odour warning properties, odour is subjective and inadequate to warn of overexposure. Mixture contains one or more component(s) which have the following odour(s): irritating/pungent odor asphyxiating odor Odorless No data available on odour
Odor threshold	:	No data available
рН	:	No data available
Melting point	:	Not applicable
Freezing point	:	No data available
Boiling point	:	No data available
Flash point	:	No data available
Relative evaporation rate (butyl acetate=1)	:	No data available
Flammability (solid, gas)	:	Not applicable.
Vapor pressure	:	No data available
Relative vapor density at 20 °C	:	No data available
Relative density	:	1.07
Solubility	:	Miscible with water.
Log Pow	:	No data available
Auto-ignition temperature	:	No data available
Decomposition temperature	:	No data available
Viscosity, kinematic	:	No data available
Viscosity, dynamic	:	No data available
Explosion limits	:	No data available
Explosive properties	:	No data available
Oxidizing properties	:	No data available

9.2. Other information

No addit				
SECTI	10: Stability and reactivity			
10.1.	eactivity			
The proc	The product is non-reactive under normal conditions of use, storage and transport.			
10.2.	hemical stability			
Stable u	Stable under normal conditions.			
10.3.	ossibility of hazardous reactions			
No dang	us reactions known under normal conditions of use.			
10.4.	onditions to avoid			
None under recommended storage and handling conditions (see section 7).				
10.5.	compatible materials			
No additional information available				
10.6.	azardous decomposition products			
Under normal conditions of storage and use, hazardous decomposition products should not be produced.				
SECTION 11: Toxicological information				
11.1.	formation on toxicological effects			
Acute to	ty : Not classified			

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barium nitrate (10022-31-8)	
LD50 oral rat	355 mg/kg (Rat)
ATE US (oral)	355.000 mg/kg body weight
Skin corrosion/irritation	: Causes skin irritation.
Serious eye damage/irritation	: Causes serious eye irritation.
Respiratory or skin sensitization	: Not classified
Serm cell mutagenicity	: Not classified
Carcinogenicity	: Not classified
Reproductive toxicity	: Not classified
Specific target organ toxicity (single exposure)	: Not classified
Specific target organ toxicity (repeated exposure)	: Not classified
Aspiration hazard	: Not classified
Symptoms/injuries after skin contact	: Irritation.
	: Eye irritation.
SECTION 12: Ecological information	
12.1. Toxicity	
Ecology - general	: The product is not considered harmful to aquatic organisms or to cause long-term adverse effects in the environment.
nitric acid (7697-37-2)	
EC50 Daphnia 1	180 mg/l (EC50; 48 h)
LC50 fish 2	72 ppm (LC50; 96 h)
Threshold limit algae 1	> 19 mg/l (EC0)
barium nitrate (10022-31-8)	
LC50 fish 1	> 1000 mg/l (LC50; 96 h)
2.2. Persistence and degradability	
nitric acid (7697-37-2)	
Persistence and degradability	Biodegradability: Not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
ThOD	Not applicable
manganese(II)nitrate (10377-66-9)	1
Persistence and degradability	Biodegradability: Not applicable.
Biochemical oxygen demand (BOD)	Not applicable
Chemical oxygen demand (COD)	Not applicable
7.00	Not applicable
ThOD	
barium nitrate (10022-31-8)	
	Biodegradability: Not applicable.
barium nitrate (10022-31-8)	
barium nitrate (10022-31-8) Persistence and degradability	Biodegradability: Not applicable.

12.3. Bioaccumulative potential

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nitric acid (7697-37-2)		
BCF fish 1	<= 1 (BCF)	
Log Pow	-2.3 (OECD 107: Partition Coefficient (n-octanol/water): Shake Flask Method)	
Bioaccumulative potential	Bioaccumulation: Not applicable.	
manganese(II)nitrate (10377-66-9)		
Bioaccumulative potential	Bioaccumulation: No data available.	
barium nitrate (10022-31-8)		
barium nitrate (10022-31-8)		

No additional information available

12.5. Other adverse effects	
Effect on the global warming	: No known effects from this product.
GWPmix comment	: No known effects from this product.

SECTION 13: Disposal considerations			
13.1. Waste treatment methods			
Waste treatment methods	: Dispose of contents/container in accordance with licensed collector's sorting instructions.		
Waste disposal recommendations	: Dispose in a safe manner in accordance with local/national regulations.		

SECTION 14: Transport information

Department of Transportation (DOT)

In accordance with DOT Not regulated

TDG

Not regulated

Transport by sea

Not regulated

Air transport

Not regulated

SECTION 15: Regulatory information

15.1. US Federal regulations

nitric acid (7697-37-2)		
Listed on the United States TSCA (Toxic Substances Control Act) inventory Subject to reporting requirements of United States SARA Section 313		
CERCLA RQ	1000 lb	
SARA Section 302 Threshold Planning Quantity (TPQ)	1000 lb	
manganese(II)nitrate (10377-66-9)		
Listed on the United States TSCA (Toxic Substances Control Act) inventory		
barium nitrate (10022-31-8)		
Listed on the United States TSCA (Toxic Substances Control Act) inventory		

15.2. International regulations	
CANADA No additional information available	
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EU-Regulations

No additional information available

National regulations

No additional information available

15.3. US State regulations

No additional information available

Revision date	: 09/10/2016
Full text of H-phrases:	
H272	May intensify fire; oxidizer
H290	May be corrosive to metals
H302	Harmful if swallowed
H314	Causes severe skin burns and eye damage
H315	Causes skin irritation
H319	Causes serious eye irritation
NFPA health hazard	: 1 - Exposure could cause irritation but only minor residual injury even if no treatment is given.
NFPA fire hazard	: 0 - Materials that will not burn.
NFPA reactivity	: 0 - Normally stable, even under fire exposure conditions, and are not reactive with water.
HMIS III Rating	
Health	: 1 Slight Hazard - Irritation or minor reversible injury possible
Flammability	: 0 Minimal Hazard - Materials that will not burn
Physical	: 0 Minimal Hazard - Materials that are normally stable, even under fire conditions, and will NOT react with water, polymerize, decompose, condense, or self-react. Non-Explosives.
Personal protection	: C
•	C - Safety glasses, Gloves, Synthetic apron

SDS US (GHS HazCom 2012)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.