

CERTIFICATE OF ANALYSIS

Product: Totarol™	
Totarol™ is the freeze-dried, milled, supercritical CO ₂ extract of chipped heartwood of tōtara wood (<i>Podocarpus totara</i>).	
Totarol™ is predominantly composed of the natural product (+)-totarol (CAS 511-15-9 IUPAC name; (4bS,8aS)-4b,8,8-trimethyl-1propan-2-yl-5,6,7,8a,9,10-hexahydrophenanthren-2-ol).	
Alaron Batch No.: B18060	Manufacture Date: 13 th May 2021
Mende Biotech Batch No.: MBL12.3.1.21	Expiry Date: 13 th May 2039
Client: Mende Biotech Limited	

Tests	Specifications	Results
Physical Appearance ¹	Light to Mid Tan Powder	Conforms
Appearance of Solution ² (Absorbance)	Not More than 0.3 @ 400 nm	Conforms
Melting Point ³ (BP Appendix V Method 1)	Record only	111°C
Water Activity (Aw) ¹	NMT 0.80	0.23
Particle Size ¹	95 – 100% pass through a 40 mesh screen (425µm)	Conforms
Bulk Density ¹	Record Only	Poured Density 0.33 g/ml Tapped Density 0.55 g/ml

Assay and Related Substances ²		
Totarol™	74 - 88 % w/w	76.1 %
Totarol™ Related Compounds	6.9 – 25 % w/w	10.5 %
Volatiles ⁴ (Loss on Drying @ 70°C)	0.5 – 5.0 % w/w	0.5 %
Total	Record Only	87.1

¹ Laboratory Reference: In-House - Alaron QC Testing

² Laboratory Reference: MI-5635

³ Laboratory Reference: V89298

⁴ Laboratory Reference: V89137

CERTIFICATE OF ANALYSIS – CONTINUED

Product: Totarol™

Batch No. MBL12.3.1.21/ B18060

Tests	Specifications	Results
Heavy Metals - Interim Levels* ⁵		
Lead (Pb)	NMT 0.5mg/kg	<0.01 mg/kg
Arsenic (As)	NMT 1.5mg/kg	<0.10 mg/kg
Cadmium (Cd)	NMT 0.5mg/kg	<0.002 mg/kg
Mercury (Hg)	NMT 1.5mg/kg	<0.01 mg/kg

Microbiological – Interim Levels* ⁶		
APC	NMT 1 x 10 ⁴ cfu/g	<100 cfu/g
Yeasts and Moulds	NMT 4 x 10 ² cfu/g	<10 cfu/g

Storage/Packaging	
Pack Size	1.00 kg
Pack Type	Heat Sealed plain foil bag with self-adhesive identification label then 8 x 1.0kg foil bags are packed into a cardboard carton which is taped closed top and bottom.
Storage	Store in a cool dry area (< 30°C) protected from light and well-sealed against moisture in its original packaging

Approved by:

A Somers

Anna Somers - Quality Assurance Coordinator

Date:

29th September 2021

Approved by:

Kelly Hewlett

Kelly Hewlett - Quality Assurance Dispatch

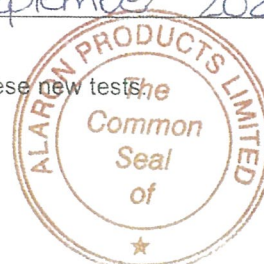
Date:

29th September 2021

* Interim levels only as we need to build up data on several batches to set limits for these new tests

⁵ Laboratory Reference: 21-145977

⁶ Laboratory Reference: V89295



Totarol™ Specification document on Chemical Analysis

Totarol™ is predominantly composed of the natural product (+)-totarol (CAS 511-15-9. IUPAC name; (4bS, 8aS)-4b, 8,8-trimethyl-1propan-2-yl-5,6,7,8a,9,10-hexahydrophenanthren-2-ol

CHEMICAL ANALYSIS

Component	Specification
(+) totarol	74-88
Other related compounds	6.9-25
Volatiles	0.5-5
Total	

Totarol™ is

Non-GMO or palm oil components

Non-Gluten

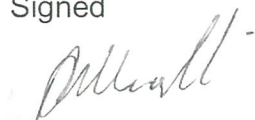
Non-EO (Ethylene Oxide)

Re: Chloromethylisothiazolinone/Methylisothiazolinone (CMIT/MIT)

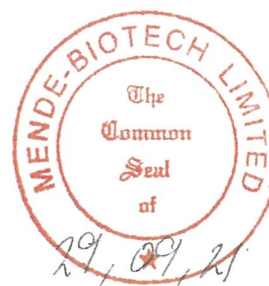
There is no CMIT/MIT in any of the processes or makeup of Totarol™

Totarol™ is 100% organic plant extract from podocarpus totara

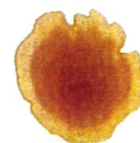
Signed



D.A. McConnell - Director



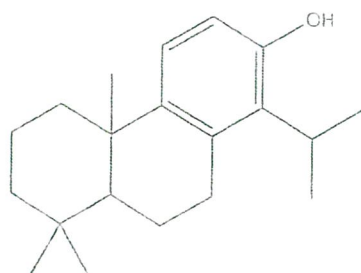
Mende Biotech Limited
P.O Box 847
Masterton 5840
Email: admin@totarol.co.nz



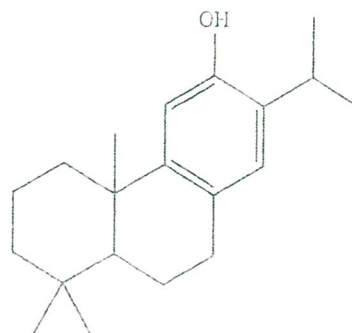
BIOACTIVE™
TOTAROL™
BY MENDE BIOTECH

TOTAROL™ COMPOSITION DOCUMENT

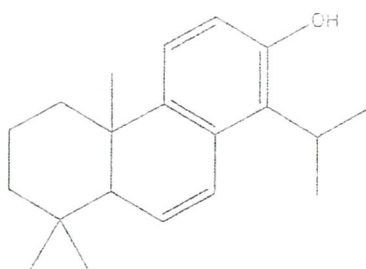
COMPONENT	CAS No.	Specification
(+) totarol	511-15-9	74-88
Ferruginol	514-62-5	1-3
Sempervirol	1857-11-0	0.4-1.2
6,7 dehydro-totarol	3625-02-3	0.2-1
Other related compounds		6.9 - 25



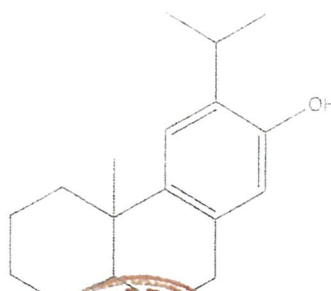
Totarol



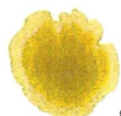
Ferruginol



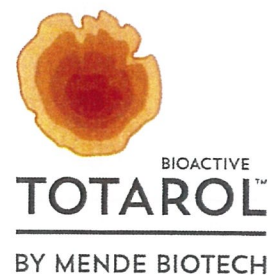
6,7-dehydro totarol



Signed



Mende Biotech Limited
P.O Box 847
Masterton 5840
Email: admin@totarol.co.nz



Product Information

Totarol™

Origin: Natural Plant extract from New Zealand Totara wood (Podocarpus totara).

Totarol™ NZ Pat App 530834

100% New Zealand made and BioGro Certification number 5033

Appearance: solid: light tan powder

Molecular weight: C 20 H 30 O=286.44

CAS Number: 511-15-9

CTFA Number: 7277

INCI Name: Totarol

EC number: 479-590-0

REACH Registration Number: 01-0000020027-80-0000

New Zealand Customs code: 40101479K

Export Tariff code, HS 1302.19.00 29E

Manufacturer:

Mende Biotech Ltd
P.O Box 847
Masterton 5840
New Zealand

Contact:

Phone: 0064 27 4533990
Email: admin@totarol.co.nz

Contact: David McConnell, Director

Signed: 



Mende Biotech Limited
P.O Box 847
Masterton 5840
Email: admin@totarol.co.nz



BIOACTIVE

TOTAROL

BY MENDE BIOTECH

SAFETY DATA SHEET

According to
HSNO Hazardous Substances (Safety Data Sheets) Notice 2017

Section 1. Identification of the material and the supplier

Product: **Totarol**
Product Use: Cosmetics/Extract
Restriction of Use: Refer to Section 15

New Zealand Supplier: **Mende Biotech Limited**
Address: 86 Southey Road
RD11, Masterton
5871

Telephone: +64 27 453 3390
Emergency No: **0800 764 766 (National Poison Centre)**

Date of SDS Preparation: 4 November 2020

Section 2. Hazards Identification

This substance is hazardous according to the EPA Hazardous Substances (Classification) Notice 2017

EPA Approval No: Additives, Process Chemicals and Raw Materials (subsidiary) –
HSR002503

Pictograms



Signal Word: **Warning**

HSNO Classification	Hazard Code	Hazard Statement	GHS Category
6.5B	H317	May cause an allergic skin reaction.	Skin Sens. 1
9.1D	H401	Toxic to aquatic life.	Aquatic Chronic 4

Prevention Code	Prevention Statement
P103	Read label before use.
P261	Avoid breathing dusts.
P272	Contaminated work clothing should not be allowed out of the workplace.
P273	Avoid release to the environment.
P280	Wear protective clothing as detailed in Section 8.

Product Name: Totarol
Date of SDS: 4 November 2020

SDS Prepared by: Technical Compliance Consultants (NZ) Ltd
Tel: 64 9 475 5240 www.techcomp.co.nz

Response Code	Response Statement
P363	Wash contaminated clothing before reuse.
P302 + P352	IF ON SKIN: Wash with plenty of soap and water.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.

Storage Code	Storage Statement
None allocated	

Disposal Code	Disposal Statement
P501	Dispose of according to Local Regulations or Authorities

Section 3. Composition/-Information on Hazardous Ingredients

Ingredients	Wt%	CAS NUMBER.
(+) Totarol	74-88	511-15-9
Other related compounds`	6,9-25	Proprietary
Volatiles	0.5-5	Proprietary

Section 4. First Aid Measures

Routes of Exposure:

If in Eyes	Rinse cautiously with water for 15 minutes. If eye irritation persists: Get medical advice.
If on Skin	Wash with plenty of soap and water. Wash contaminated clothing before reuse. If skin irritation or rash occurs: get medical advice/attention.
If Swallowed	Rinse mouth thoroughly with water. Never give anything by mouth to an unconscious person. Seek medical attention if needed.
If Inhaled	Remove person to fresh air. Remove contaminated clothing and loosen remaining clothing. Allow person to assume most comfortable position and keep warm. Keep at rest until fully recovered. Apply artificial respiration if not breathing. Get medical advice if breathing becomes difficult.

Most important symptoms and effects, both acute and delayed

Symptoms:

Ingestion:	Not applicable
Inhalation:	Not applicable.
Skin:	May cause an allergic skin reaction.
Eye:	Not applicable.

Notes to doctor: Treat symptomatically.

Section 5. Fire Fighting Measures

Hazard Type	Non Flammable
Hazards from products	Carbon dioxide (CO ₂) Carbon monoxide (CO)
Suitable Extinguishing media	Foam; Carbon dioxide; Dry chemical extinguisher; Water spray jet
Precautions for firefighters and special protective clothing	Use self-contained breathing apparatus. Wear protective clothing.

Product Name: Totarol
Date of SDS: 4 November 2020

SDS Prepared by: Technical Compliance Consultants (NZ) Ltd
Tel: 64 9 475 5240 www.techcomp.co.nz

HAZCHEM CODE	None Allocated
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Section 6.	Accidental Release Measures
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Wear protective gear as detailed in Section 8. Evacuate all unnecessary personnel. Ensure adequate ventilation. Avoid dust formation.

Do not discharge into the drains/surface waters/groundwater.

Pick up mechanically. Put into a container for disposal. Dispose of in compliance with local and/or national regulations as described in Section 13.

Section 7.	Handling and Storage
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Precautions for Handling:

- Read label before use.
- Avoid breathing dusts.
- Contaminated work clothing should not be allowed out of the workplace.
- Avoid release to the environment.
- Wear protective clothing as detailed in Section 8.
- Provide good ventilation of working area (local exhaust ventilation if necessary).
- Advice on protection against fire and explosion
- Keep away from sources of heat and ignition.

Precautions for Storage:

- Store away from incompatible materials listed in Section 10.
- Keep container tightly closed and dry in a cool, well-ventilated place.
- Store product in closed containers.
- Always keep in containers of same material as the original one.

Section 8	Exposure Controls / Personal Protection
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WORKPLACE EXPOSURE STANDARDS (provided for guidance only)

Substance	TWA		STEL	
	ppm	mg/m ³	ppm	mg/m ³

No ingredients have exposure limits

Workplace Exposure Standard – Time Weighted Average (WES-TWA) The time-weighted average exposure standard designed to protect the worker from the effects of long-term exposure. Workplace Exposure Standard – Short-Term Exposure Limit (WESSTEL). The 15-minute average exposure standard. Applies to any 15- Minute period in the working day and is designed to protect the worker against adverse effects of irritation, chronic or irreversible tissue change, or narcosis that may increase the likelihood of accidents. The WES-STEL is not an alternative to the WES-TWA; both the short-term and time-weighted average exposures apply. Workplace Exposure Standards and Biological Exposure Indices NOV 2019 11TH EDITION.

Engineering Controls

Prevent dust formation.

Personal Protection Equipment



Eyes	Safety glasses (EN 166)
Hands	In case of intensive contact wear protective gloves (EN 374). Sufficient protection is given wearing suitable protective gloves checked according to i.e. EN 374, in the event of risk of skin contact with the product. Before use, the protective glove should be tested in any case for its specific work-station suitability (i.e. mechanical resistance, product compatibility and antistatic properties).

Product Name: Totarol
Date of SDS: 4 November 2020

SDS Prepared by: Technical Compliance Consultants (NZ) Ltd
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	Nitrile: Should be >0.3mm thick and have a min breakthrough of >480 min. Rubber: Should be >0.5mm thick and have a min breakthrough of >240 min.
Skin	Clothing as usual in the chemical industry.
Respiratory	If workplace exposure limits are exceeded, a respiration protection approved for this particular job must be worn. In case of dust formation, take appropriate measures for breathing protection in the event workplace threshold values are not specified. Respiratory filter (part): P1 (EN 143)
General	Do not eat, drink or smoke during work time. Keep away from foodstuffs and beverages. Wash hands before breaks and after work. Have eye wash fountain available. Do not inhale dust.

Section 9 Physical and Chemical Properties

Appearance	Solid
Colour	Light Brown
Odour	Not available
Odour Threshold	Not available
pH	Not available
Boiling Point	>400°C
Melting Point	68°C
Freezing Point	Not available
Flash Point	Not available
Flammability	Not available
Upper and Lower Explosive Limits	Not available
Vapour Pressure	0,000000076 Pa @ 25°C
Vapour Density	Not available
Specific Gravity	Not available
Water Solubility	<0.37mg/l @ 20°C
Partition Coefficient:	>6.1 @ 25°C
Auto-ignition Temperature	Not available
Decomposition Temperature	94°C
Kinematic Viscosity	Not available
Particle Characteristics	Not available

Section 10. Stability and Reactivity

Stability of Substance	This product is stable under normal conditions.
Possibility of hazardous reactions	None known.
Conditions to Avoid	None known.
Incompatible Materials	None known.
Hazardous Decomposition Products	Carbon dioxide (CO ₂) Carbon monoxide (CO)

Section 11 Toxicological Information

Acute Effects:

Swallowed	Not applicable. LD50 = >2000mg/kg (rat)
Dermal	Not applicable. LD50 = >2000mg/kg
Inhalation	Not applicable.
Eye	Not applicable.
Skin	May cause an allergic skin reaction.

Chronic Effects:

Product Name: Totarol
Date of SDS: 4 November 2020

SDS Prepared by: Technical Compliance Consultants (NZ) Ltd
Tel: 64 9 475 5240 www.techcomp.co.nz

Carcinogenicity	Not applicable.
Reproductive Toxicity	Not applicable.
Germ Cell Mutagenicity	Not applicable.
Aspiration	Not applicable.
STOT/SE	Not applicable.
STOT/RE	Not applicable.

Acute toxicity

Acute Oral toxicity`

LD50 = 2000 mg/kg (rat) Method 96/54/EEC, B.1 tris

Mute dermal toxicity

LD50 > 2000 mg/kg Method 92/69/EEC, B.3

Irritant/corrosive effects

Irritant effect on skin Species rabbit Duration of exposure 4
Evaluation non-irritant Method OECD 404

Irritant effect on eyes Species rabbit
Evaluation non-irritant Method OECD 405

Sensitisation

Species mice Evaluation sensitizing Method 2004/73/EG, B.42 (LLNA)

Mutagenicity

Type Gene mutation Species Salmonella typhimurium / Escherichia coli
Value negative Method 2000/32/EG, 3.13, B.14
Type Chromosome aberration Species Chin. Hamster, V79-cells
Value negative Method 2000/32/EG, B.10

Section 12. Ecotoxicological Information

HSNO Classes: 9.1D May cause long lasting harmful effects to aquatic life.

Product:	
Persistence and degradability	Biodegradability: Value = 18 Duration of Exposure = 28 days Evaluation: Not readily degradable
Bioaccumulation	No data available
Mobility in Soil	No data available
Other adverse effects	No data available

Toxicity Data

Daphnia toxicity

EC50 > 100 mg/I

Species Daphnia magna

Duration of exposure 48

Method 92/69/EEC, C.2

NOEC > 10 mg/I

Species Daphnia magna

Duration of exposure 48

Product Name: Totarol
Date of SDS: 4 November 2020

SDS Prepared by: Technical Compliance Consultants (NZ) Ltd
Tel: 64 9 475 5240 www.techcomp.co.nz

Do not allow to enter waterways.

Section 13. Disposal Considerations

Disposal Method:

Residuals- must be removed from packaging and when emptied completely disposed of in accordance with Local Regulations. Incompletely emptied packaging must be disposed of in the form of disposal specified by the regional disposer.

Precautions or methods to avoid: Avoid release to the environment.

Section 14 Transport Information

This product is NOT classified as a Dangerous Good for transport in NZ ; NZS 5433:2012

Section 15 Regulatory Information

This substance is classified hazardous according to the EPA Hazardous Substances (Classification) Notice 2017

EPA Approval Code: Additives, Process Chemicals and Raw Materials (subsidiary) – HSR002503

HSNO Classification: 6.5B, 9.1D

HSW (HS) Regulations 2017 and EPA Notices	Trigger Quantity
Certified Handler	Not required
Location Certificate	Not required
Tracking Trigger Quantities	Not required
Signage Trigger Quantities	10 000kg (9.1D)
Emergency Response Plan	1000kg (6.5B)
Secondary Containment	1000kg (6.5B)
Restriction of Use	Only use for the intended purpose.

Section 16 Other Information

Glossary

EC ₅₀	Median effective concentration.
EEL	Environmental Exposure Limit.
EPA	Environmental Protection Authority
HSNO	Hazardous Substances and New Organisms.
HSW	Health and Safety at Work.
LC ₅₀	Lethal concentration that will kill 50% of the test organisms inhaling or ingesting it.
LD ₅₀	Lethal dose to kill 50% of test animals/organisms.
LEL	Lower explosive level.
OSHA	American Occupational Safety and Health Administration.
TEL	Tolerable Exposure Limit.
TLV	Threshold Limit Value-an exposure limit set by responsible authority.
UEL	Upper Explosive Level
WES	Workplace Exposure Limit

References:

1. EPA Hazardous Substances (Safety Data Sheets) Notice 2017
2. Workplace Exposure Standards and Biological Exposure Indices Nov 2017 edition.
3. Assigning a hazardous substance to a HSNO Approval (Aug 2013).
4. Transport of Dangerous goods on land NZS 5433:2012

Product Name: Totarol
Date of SDS: 4 November 2020

SDS Prepared by: Technical Compliance Consultants (NZ) Ltd
Tel: 64 9 475 5240 www.techcomp.co.nz

5. HSW (Hazardous Substances) Regulations 2017

Disclaimer

This document has been prepared by TCC (NZ) Ltd and serves as the suppliers Safety Data Sheet ('SDS'). It is based on information concerning the product which has been provided to TCC (NZ) Ltd or obtained from third party sources and is believed to represent the current state of knowledge as to the appropriate safety and handling precautions for the product at the time of issue. Further clarification regarding any aspect of the product should be obtained directly from the manufacturer. While TCC (NZ) have taken all due care to include accurate and up-to-date information in this SDS, it does not provide any warranty as to accuracy or completeness. As far as lawfully possible, TCC (NZ) Ltd accept no liability for any loss, injury or damage (including consequential loss) which may be suffered or incurred by any person as a consequence of their reliance on the information contained in this SDS

The information herein is given in good faith, but no warranty, express or implied is made.

Please contact the New Zealand distributor, if further information is required.

Issue Date: 4 November 2020 Review Date: 4 November 2025



Certificate of Compliance

This certificate confirms that the company and operations listed below are certified by BioGro.

Company:

Mende Biotech Ltd

86 Southey Road
Masterton 5480
New Zealand

BioGro Number:
First Certified From:
Date of Issue:

5033
25/03/2008
18/08/2022

#	Operation Name	Operation Facility/Address	Scope of Certification	Product
1	Mende Biotech - CO1 - HBC	86 Southey Road, Masterton 5840, New Zealand	Health & Body Care	Annex A

Certification Valid From:

01/08/2022

Anniversary Date / Certificate Valid To:

31/07/2023

Renewal Due (Before Expiry):

4 Months

Director:

Donald Nordeng

For the purpose of USDA NOP: once certified, a production or handling operation's organic certification continues in effect until surrendered, suspended or revoked.

This certificate is issued within the scope of the accreditation for product certification issued by the IOAS. Registration number: 23

The above named licensee is licensed to apply or direct the application of the BioGro Certification trademark provided the product has been produced in accordance with the BioGro Organic Standards by the licensee or under the licensee's supervision at the location named in this certificate. While all due care and skill was exercised in carrying out this assessment, BioGro New Zealand Ltd accepts responsibility only for proven gross negligence. This is not a legal document and cannot be used as such. This certificate remains the property of BioGro New Zealand Ltd to whom it must be returned if required.

Director:



Issuing Office:

BioGro New Zealand Ltd
Digital Nomad (Old Bank Arcade)
233 Lambton Quay
Wellington 6011
New Zealand

Tel +64 4 801 9741

Email: info@biogro.co.nz
www.biogro.co.nz

<http://www.jas-anz.org/register>





BioGro New Zealand Annex A

Internationally Accredited Programme

BioGro Number: 5033

Annex to BioGro
Certificate Number:

5033 Mende Biotech
Ltd CO1 Certificate
22-23 V1

This Annex lists the land, products, crops, livestock and services enrolled in BioGro's Internationally Accredited Certification Programme as compliant with the standards and/or market access programmes as indicated below. This Annex is only valid when used in conjunction with the BioGro New Zealand Certificate of Compliance.

1 Mende Biotech - CO1 - HBC

Certified Products & Services	BioGro In Conversion	BioGro - Made with Organic Ingredients	BioGro Organic	IFOAM	MPI OOAP - EU	MPI OOAP - EU Made with Organic	MPI OOAP - GB	MPI OOAP - GB Made with Organic	MPI OOAP - Switzerland	MPI OOAP - USDA NOP (Organic)	MPI OOAP - USDA NOP (100% organic)	MPI OOAP - USDA NOP (Made with organic ingredients)	MPI OOAP - Taiwan	MPI OOAP - Japan	MPI OOAP - China	SA Certification Accepted Product
Totaro TM			✓	✓												

Notes:

BioGro: certification is based on compliance with the BioGro Organic Standard

IFOAM: accredited by IOAS (International Organic Accredited Service), certification is based on compliance with the IFOAM Standard for Organic production and processing

MPI OOAP - EU - Ministry for Primary Industries Official Organic Assurance Programme for exports to Europe (EU) in accordance to Article 7 of Regulation (EC) No 1235/2008.

MPI OOAP - USDA NOP: Certified to the USDA organic regulations, 7CFR Part 205

MPI OOAP - Taiwan: exporting to Taiwan under the equivalency.

MPI OOAP - Switzerland: exporting to Switzerland under the equivalency.

MPI OOAP - Japan: exporting to Japan under the equivalency.

MPI Technical Rules: Certified to the MPI Technical Rules for Organic Production.

SA Certification Accepted Product: Soil Association Certification Accepted Product.

This document has been issued on the basis of Article 29(1) of Regulation (EC) No 834/2007 and of Regulation (EC) No 889/2008. The declared operator has submitted his activities under control, and meets the requirements laid down in the named Regulations.

BioGro New Zealand NATRUE Raw Materials Approval

This certificate confirms that the following company's raw material(s) complies with the NATRUE criteria for specified NATRUE status.

Company **Mende Biotech Ltd**
154 Belvedere Road
Carterton
New Zealand

BioGro No **5033**
First Certified from **13 July 2021**

Raw Material Trade Name
Refer Annex to BioGro NATRUE Raw Material Approval

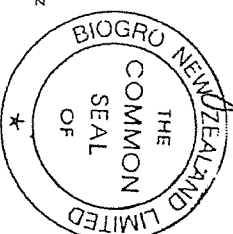
Date of Issue **13 July 2021**
Certification Valid from **13 July 2021**

Certification Valid to **12 July 2023**

Certification Staff
Director

This certificate entitles the holder to use the NATRUE label in accordance with the contract Agreement on the usage of the label with NATRUE.
While all due care and skill was exercised in carrying out this assessment, BioGro New Zealand Ltd accepts responsibility only for proven gross negligence. This is not a legal document and cannot be used as such. This certificate remains the property of BioGro New Zealand Ltd to whom it must be returned if required.

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Fax +64 4 801 9742
Email: info@naturalcertification.co.nz
www.naturalcertification.co.nz





BioGro New Zealand

BioGro No 5033

Annex to BioGro NZ NATRUE Raw Material Approval V1

Valid to 12 July 2023

Raw Material Trade Name

Totatol™ (INCI: Totatol™)
100% Natural

This Annex is only valid when used in conjunction with the BioGro New Zealand NATRUE Raw Material Approval.

Date of Issue 13 July 2021