SAFETY DATA SHEET

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

1.1 Product Identifier:

iNTrench® Ca

1.2 Relevant uses of the substance or mixture and uses advised against:

Use as a professional use fertiliser

1.3 Details of the manufacturer:

PI Bioscience Limited
Rothamsted
West Common
Harpenden
Hertfordshire
AL5 2JQ

Phone number: +44 (0)1582 465540
Email: info@plantimpact.com

1.4 Details of the supplier of the safety data sheet:

The Nutrel Group
Park Farm
Kettlethorpe
Lincoln
LN1 2LD

Contact: The Safety Officer
Phone number: +44 (0) 1522 704404
Email: Stuart.Rycroft@nutrelgroup.co.uk

1.5 Emergency phone number

Phone number: +44 (0) 1522 704404

2. HAZARDS IDENTIFICATION

2.1 Classification of the substance or mixture

CLASSIFICATION according to Directive EC 1272/2008 Classification, Labelling and Packaging

Acute Toxicity 4 H302 Harmful if swallowed.
Eye Damage 1 H318 Causes serious eye damage.

CLASSIFICATION according to Directive 1999/45/EC and statutory instrument No.716 2009 Chemicals (Hazard Information and Packaging) regulation)
Xn, R22; Harmful, Harnful if swallowed
Xi, R41; Irritant, risk of serious damage to eyes

Primary Hazard
Causes serious eye damage

2.2 Label Elements

iNTrench® Ca
(contains: Calcium nitrate E.C. 233-332-1)

Signal word: Danger

Hazard Statements:
H302: Harmful if swallowed.
H318: Causes serious eye damage.

Precautionary Statements
P280: Wear protective gloves and eye protection.
P270 Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling.

Supplementary Precautionary Statements
P305+P351+P338: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310: Immediately call a POISON CENTER or doctor/physician.
P301 + P312 IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
P330 Rinse mouth.

2.3 Other Hazards
None Known

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3. Composition/information on ingredients
Product Code: RL577A

3.2 Mixtures

Hazardous components

Chemical Name	CAS-No./ EINECS-No.	Annex Index or REACH number	Symbol(s)	R-phrase(s)	Concentrations [%]
Calcium nitrate	15245-12-2/ 239-289-5	Reach registration number: 01-2119493947-16	According to 1272/2008: GHS07  GHS07  According to 67/548/EEC:  HARMFUL  IRRITANT	According to 1272/2008: Acute tox. 4 H302 Eye Damage 1 H318 According to 67/548/EEC: R22, R41	30.0 – 40.0
Disodium octaborate tetrahydrate	234-541-0/ 12280-03-4	Reach registration number: 01-2119490860-33-0003	According to 1272/2008: GHS08  According to 67/548/EEC:  TOXIC Reproductive Category 2	According to 1272/2008: Repr. 1B H360FD According to 67/548/EEC: R60, R61	< 1.0

The full text and symbols for all hazard information if not displayed in section 2 or 3 are displayed in Section 16.

4. First Aid Measures

4.1 Description of first aid measures

4.1.1 Inhalation

Remove from source of exposure to fresh air, seek medical attention.

4.1.2 Skin & Eye exposure

Drench immediately with water. Remove any contaminated clothing and launder before re-use. Seek medical attention if symptoms persist/develop.
Eyes: Rinse cautiously for several minutes, Remove contact lenses, if present and easy to do, rinse with clean water for 15 minutes. Obtain medical attention IMMEDIATELY.

4.1.3 Ingestion

Do not induce vomiting. Wash out mouth with water and give water to drink. Seek medical attention immediately if symptoms persist or develop.

4.2 Most important symptoms and effects, both acute and delayed

Information not available

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

Information not available

5. Fire-Fighting measures

5.1 Extinguishing media

Use Foam, carbon dioxide, dry powder, sand. The mixture is not classified as flammable as such extinguishing media should also be chosen as appropriate for surrounding materials.

5.2 Special Hazards arising from the substance or mixture

Possible irritant fumes arising from combustion

5.3 Advice for fire-fighters

Cool down containers/equipment exposed to heat with a water spray. Contain spread of extinguishing fluids (these fluids may be hazardous for the environment). Wear complete protective clothing and self-contained breathing apparatus

6. Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Personal protective equipment is not specified as the mixture is not classified as dangerous to humans or the environment.

6.2 Environmental Precautions
Do not allow to enter storm drains or water courses. If this product enters a water course or a sewer (including via contaminated soil & vegetation) in large quantities contact local water authority and inform the Environment Agency

6.3 Methods and material for containment and cleaning up
Use soil, sand or other absorbent material. Contact specialist waste disposal contractor.

6.4 Reference to other sections
No reference necessary

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7. Handling and storage

7.1 Precaution for safe handling
Open container with care. Avoid contact with skin and eyes. Wash Hands thoroughly after handling. Do not eat, drink or smoke when using this product

7.2 Conditions for safe storage, including any incompatibilities
Store in a cool dry atmosphere, in original labelled containers. Refer to manufacturer for maximum safe stacking height. Keep away from heat sources, combustible materials.

7.3 Specific end use(s)
No Information available

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8. Exposure controls/personal protection

8.1 Control Parameters
Exposure limit values have not been determined for this mixture

8.2 Exposure controls
Considered for handling bulk concentrate
Goggles – Eye Protection: goggles/face shield to BS EN166.
Gloves – BS EN374 – chemical protection: physical barrier protection only

Suitable engineering controls should be in place for measuring and decanting of product. Avoid formulation of dust

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9. Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance; Brown liquid

Odour; No Information available

pH; 2.0 – 2.5

Melting point/freezing; No Information available

Initial boiling point and boiling range; Not applicable for powdered product

Flash point; Mixture not classed as Flammable

Flammability (solid, gas); mixture not classed as flammable

Explosive Properties; Mixture not classed as explosive

Oxidising Properties; Mixture not classed as oxidising

Vapour Pressure; Not applicable for powdered product

Vapour density; Not applicable for powdered product

Specific gravity; 1.345 – 1.355

Solubility (ies); No Information available

Viscosity; Not applicable for powdered product

Partition coefficient: n-octanol/water; No Information available

9.2 Other Information
No other relevant information available

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10. Stability and reactivity

10.1 Reactivity
Unknown

10.2 Chemical Stability
Stable under normal conditions of use

10.3 Possibility of hazardous reactions
Information not available

10.4 Conditions to avoid
Extremes of temperature

10.5 Incompatible materials
None Known

10.6 Hazardous decomposition products
Possible Irritant fumes

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11. Toxicological Information

11.1 Information on toxicological effects

This mixture has not been assessed for toxicological effects as the mixture is not classified as dangerous based on its individual components.

Toxicological information on hazardous ingredients:

Calcium nitrate:

Acute toxicity:
LD50 Oral Rat: > 300 mg/kg
LD50 Dermal Rat > 2,000 mg/kg
Conclusion: Harmful if swallowed

Irritation/Corrosion:
Eyes - Severe irritant
Rabbit 24 - 72 h 21 d
Conclusion/Summary:
Skin: Non-irritating to the skin.
Eyes: Causes serious eye damage.
Respiratory: Non-irritating to the respiratory system.

Sensitization:
Conclusion/Summary
Skin: Not sensitizing
Respiratory: Not determined.

Mutagenicity:
Conclusion/Summary: No mutagenic effect.

Carcinogenicity
Conclusion/Summary: No carcinogenic effect.

Teratogenicity
Conclusion/Summary: No known significant effects or critical hazards.

Reproductive toxicity:

Maternal toxicity	**Fertility**	**Development toxin**	**Species**	**Dose**	**Exposure**
Negative	Negative	Negative	Rat	Oral: 1500 mg/Kg	53 days

Conclusion/Summary: No known significant effects or critical hazards.
Information on the likely routes of exposure: not available

Potential acute health effects:

Inhalation: May give off gas, vapour or dust that is very irritating or corrosive to the respiratory system. Exposure to decomposition products may cause a health hazard. Serious effects may be delayed following exposure.
Ingestion: Harmful if swallowed. May cause burns to mouth, throat and stomach.
Skin contact: No known significant effects or critical hazards.
Eye contact: Causes serious eye damage.

Symptoms related to the physical, chemical and toxicological characteristics
Inhalation: No specific data.
Ingestion: Adverse symptoms may include the following: stomach pains
Skin contact: Adverse symptoms may include the following: pain or irritation redness blistering may occur
Eye contact: Adverse symptoms may include the following: pain, watering, redness

Delayed and immediate effects and also chronic effects from short and long term exposure
Short term exposure
Potential immediate effects: Adverse health effects are considered unlikely, when the product is used according to directions.
Potential delayed effects: None identified.

Long term exposure
Potential immediate effects: Adverse health effects are considered unlikely, when the product is used according to directions.
Potential delayed effects: None identified.

Potential chronic health effects:

Product / ingredient name	**Result**	**Species**	**Dose**	**Exposure**
Nitric acid, ammonim calcium salt	Sub-acute NOAEL Oral	Rat	> 1000 mg/Kg	28 days

Conclusion/Summary: Not toxic.
General: No known significant effects or critical hazards.
Carcinogenicity: No known significant effects or critical hazards.
Mutagenicity: No known significant effects or critical hazards.
Teratogenicity: No known significant effects or critical hazards.
Developmental effects: No known significant effects or critical hazards.
Fertility effects: No known significant effects or critical hazards.
Toxicokinetics
Absorption: Rapidly absorbed.
Distribution: Enters the systemic circulation without passing through liver tissues.
Metabolism: Rapidly metabolized. Metabolized to the following:

Ca^{2+}
NH_4^+
NO_3^-

Elimination: Excreted via the urine. The chemical and its metabolites are fully excreted and do not accumulate within the body.

Disodium octaborate tetrahydrate
Oral acute toxicity:
Low acute oral toxicity;

Values used for CSA:
LD50 (rat): 3143.6 mg/kg body weight (658.9 mg B/kg body weight)
LD50 (mouse): 2877.2 mg/kg body weight (603.06 mg B/kg body weight.

Value used for CSA:
NOAEL: 959 mg/kg body weight/day (201 mg B/kg body weight /day)
LD50 in dog (male): 1668 mg/kg of body weight (349.6 mg B/kg body weight).

Skin/dermal acute toxicity:
Low acute dermal toxicity.
LD50 (rat): >2000 mg/kg of body weight.
Disodium octaborate tetrahydrate is poorly absorbed through intact skin

Inhalation acute toxicity:
Low acute inhalation toxicity.
LC50 (5h) in rats ((male/female): > 2030 mg/m^3

Respiratory tract irritation:
Slightly irritant for respiratory tract.
Skin irritation: Not irritating.
Eye irritation: For rats slightly irritant for eyes. Years of occupational exposure to Disodium octaborate tetrahydrate indicates no adverse effects on human eye. Therefore is not considered to be a human eye irritant in normal industrial use.

Sensitisation: Not sensitising.

Reproductive/developmental toxicity:
Animal feeding studies in rat, mouse and dog at high doses, have demonstrated adverse haematological effects and the main target organ of boron toxicity is the testis). Studies in rat, mouse and rabbit, at high doses, demonstrate developmental effects on the foetus, including foetal weight loss and minor skeletal variations.
The doses administered were many times higher than those to which humans would normally be exposed to.

Value used for CSA (oral):
NOAEL for fertility (rat males) of 17.5 mg B/kg/day)
There is no evidence of developmental effects in humans attributable to boron in studies of populations with high exposures to boron.

Carcinogenicity/Mutagenicity: Not a carcinogen.
Not a mutagen.

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12. Ecological Information

12.1 Toxicity

Not classified as harmful to the environment in accordance with the CHIP regulations 2009 and 1999/45/EC.

12.2 Persistence and degradability

Information not available

12.3 Bioaccumulative potential

Information not available

12.4 Mobility in soil

Information not available

12.5 Results of PBT and vPvB

Not classified

12.6 Other adverse effects

Information not available

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13. Disposal considerations

13.1 Waste Treatment Methods

Use only licensed waste disposal companies for unwanted chemical. Do not re-use empty containers for any purpose, dispose of packaging in accordance with local regulations.

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14. Transport Information

14.1 UN number: Product is unclassified for transport
14.2 UN proper shipping name: Product is unclassified for transport
14.3 Transport hazard Product is unclassified for transport
14.4 Packing group: Product is unclassified for transport
14.5 Environmental hazards: Product is unclassified for transport
14.6 Special precautions for user: Product is unclassified for transport
14.7 Transport in bulk according to Annex II of MARPOL 73/78 and the IBC code
Applicable for Maritime bulk transport only. Check with carrier.

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15. Regulatory information

15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture.
This substance is classified and labelled in accordance with regulation 1999/45/EC, 1272/2008, the statutory instrument No.716 2009 Chemicals (Hazard Information and Packaging) regulations and the EC Fertiliser Regulations 2003,
Regulation (EC) No 1907/2006 of the European Parliament and of the Council of 18 December 2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH), establishing a European Chemicals Agency, amending Directive 1999/45/EC and repealing Council Regulation (EEC) No 793/93 and Commission Regulation (EC) No 1488/94 as well as Council Directive 76/769/EEC and Commission Directives 91/155/EEC, 93/67/EEC, 93/105/EC and 2000/21/EC, including amendments. Regulation (EC)

15.2 Chemical Safety Assessment
CSA not undertaken for this substance

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16. Other Information

Other Hazard Information assigned to individual ingredients, but not carried to final classification:

R22: Harmful if swallowed.
R41: Risk of serious damage to eyes.
R60: May impair fertility.
R61: May cause harm to the unborn child.

Repr 1B H360FD: May damage fertility or the unborn child.
Specific effect: FD
Route of exposure: Oral

SDS information:
This Safety data sheet is compiled using data submitted for raw materials and practical experience.
This product is intended for professional users only.
This Safety Data Sheet is prepared in compliance with Directive 1999/45/EC, 1272/2008 and Annex I of the REACH regulation 453/2010.
The information given herein is, to the best of our knowledge, correct and is presented in good faith but no warranty, expressed or implied is given.