SAFETY DATA SHEET

Rainbow & Brown 2,4-D 720 Amine

1. PRODUCT & COMPANY IDENTIFICATION

Product Identification/Name:	Rainbow & Brown 2,4-D 720 Amine
Alternative Name:	Contains 720g/L 2,4-D as the dimethylamine salt in the form of a soluble concentrate.
Product Use:	Herbicide
Company Identification:	Rainbow & Brown Limited 68A Tallyho Street, Rotorua, New Zealand PO Box 10049, Mail Centre, Rotorua, 3046
Telephone:	+64 7 350 2009
Toll-Free Phone:	0508 299 299
After Hours Emergency	+64 27 498 2574
National Poisons Centre	0800 764 766
CHEMCALL Emergency Response	0800 CHEMCALL 24,7 365 days a year
Website:	www.rainbowbrown.co.nz
Date of Issue:	17 June 2021 – Version 1.0
Latest Revision Date:	31 October 2024 – Version 2.0

2. HAZARD IDENTIFICATION

This substance is hazardous according to the EPA Hazardous Substances (Classification) Notice 2020.

EPA Approval No:	HSR007878
Pictograms:	
Signal Word:	**DANGER**

GHS Classification & Category	HSNO Classification	Hazard Code	Hazard Statement
Acute oral toxicity, Category 4	6.1D	H302	Harmful if swallowed.
Serious eye damage, Category 1	8.3A	H318	Causes serious eye damage.
Specific target organ toxicity (repeated exposure), Category 1	6.9A	H372	Causes damage to organs through prolonged or repeated exposure.

Hazardous to the soil environment	9.2A	H421	Very toxic to soil environment.
Hazardous to terrestrial vertebrates	9.3B	H432	Toxic to terrestrial vertebrates.
Hazardous to the aquatic environment (chronic), Category 2	9.1B	H411	Toxic to aquatic life with long lasting effects.

Prevention Code	Prevention Statement
P102	Keep out of reach of children.
P103	Read label before use
P260	Do not breathe mists, vapours, or spray.
P264	Wash hands thoroughly after handling.
P270	Do not eat, drink or smoke when using this product.
P273	Avoid release to the environment.
P280	Wear protective clothing and equipment as detailed in Section 8.

Response Code	Response Statement
P101	If medical advice is needed, have product container or label at hand.
P301 + P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
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.
P314	Get medical advice/attention if you feel unwell.
P330	Rinse mouth.
P363	Wash contaminated clothing before reuse.
P391	Collect spillage

Storage Code	Storage Statement
-	-

Disposal Code	Disposal Statement
P501	In accordance with the EPA Hazardous Substances (Disposal) Notice 2017. Refer to Section 13 of this SDS.

3. COMPOSITION/INFORMATION ON INGREDIENTS

Ingredient	CAS Number	Concentration (%w/w)
2,4-D acid	94-75-7	720g/L
Dimethylamine salt	124-40-3	147g/L
Other ingredients (non-hazardous)		Up to 1L

This is a commercial product whose exact ratio of components may vary slightly. Minor quantities of other non-hazardous ingredients are also possible.

4. FIRST-AID MEASURES

Eye Contact:	Immediately flush the contaminated eye(s) with lukewarm, gently flowing water for 15 minutes while holding the eyelid(s) open. Take care not to rinse contaminated water into the unaffected eye or onto the face. Remove contact lenses after first 5 minutes if present and easy to do, the continue rinsing. Get medical advice/assistance if irritation persists.
Skin:	Remove contaminated clothing. Wash gently and thoroughly with plenty of water (use non-abrasive soap if necessary). Do not scrub the skin. Get medical advice/attention if irritation occurs. Wash contaminated clothing before re-use.
Ingestion:	If swallowed, do NOT induce vomiting. Rinse mouth with water. Contact a Poisons Information Centre or call a doctor.
Inhalation:	No first aid measures normally required. However, if inhalation has occurred, and irritation has developed, remove to fresh air, and observe until recovered. If irritation becomes painful or persists more than about 30 minutes, seek medical advice.
General:	Call the National Poisons Centre (0800 POISON, 0800 764 766) for advice if you feel unwell or have been exposed and are concerned. Have product label or SDS at hand.

5. FIRE-FIGHTING MEASURES

General Information	As in any fire, wear a self-contained breathing apparatus in pressure demand, MSHA/NIOSH (approved or equivalent), and full protective gear. During a fire, irritating and highly toxic gases may be generated by thermal decomposition or combustion. Combustible material; may burn but does not ignite readily.
Extinguishing Media:	Use water spray, dry chemical, carbon dioxide, or an appropriate foam.
Fire & Explosion Hazards:	Heating may cause expansion/decomposition leading to rupture of containers. If safe to do so, remove containers from the path of fire. Cool heated containers with water spray.
Fire Fighting Equipment:	Vapours of heated material may be toxic. Use self contained breathing apparatus.
Fire Fighting Instructions:	The addition of water may cause excessive foaming. Do not allow runoff into drains.

Hazchem Code:	3Z

6. ACCIDENTAL RELEASE MEASURES

Personal precautions:	Clear area of all unprotected personnel. Keep people upwind of fire. Use appropriate protective clothing and equipment.
Environmental precautions:	Prevent product from entering waterways or drains.
Spills and Disposal:	Wear full protective clothing including eye/face protection. All skin areas should be covered. Refer to Section 8 for personal protective equipment. If vapours or mists are likely to build up in the clean-up area, we recommend to use a respirator. Usually, no respirator is necessary when using this product. Stop leak if safe to do so and contain spill. Collect liquid spills. Absorb small spills and residues with sand, vermiculite, or other suitable absorbent material. If spill is too large or if absorbent material is not available, try to create a dike to stop material spreading or going into drains or waterways. Sweep up and shovel or collect contaminated solids into labelled containers for recycling or salvage and dispose of promptly. After spills, wash area preventing runoff from entering drains. If a significant quantity of material enters drains, advise emergency services. See section 13 for details on disposal.

7. HANDLING AND STORAGE

Label:	Read the storage/handling precautions on the product label.
Handling:	Read label before use. Keep exposure to this product to a minimum, and minimise the quantities kept in work areas. Some liquid preparations settle or separate on standing and may require stirring before use. Check packaging - there may be further storage instructions on the label. Refer to Section 8 of this SDS for details of personal protective measures, and make sure that those measures are followed. The measures detailed below under "Storage" should be followed during handling to minimise risks to persons using the product in the workplace. Thoroughly launder protective clothing before storage or re-use. Advise laundry of nature of contamination when sending contaminated clothing to laundry.
Storage:	Keep out of reach of children. Store in original container tightly closed and in a locked, dry, cool area away from foodstuffs, fertiliser and seed. Store in accordance with the current version of NZS8409 Management of Agrichemicals. Storage of 1000L or more requires signage, secondary containment and an emergency response plan.

8. EXPOSURE CONTROLS & PERSONAL PROTECTION

Exposure Guidelines:	<table><tr><th>Ingredient</th><th>CAS Number</th><th>TWA (mg/m^3)</th><th>STEL (mg/m^3)</th></tr><tr><td>No ingredients have exposure limits</td><td></td><td>Not set (Note: 2,4-D as acid 10 mg/m^3 (8hr TWA)</td><td>Not set</td></tr></table>WorkSafe's 13th edition of WES and BEI values, published April 2022. The WES TWA exposure value is the average airborne concentration of a particular substance when calculated over a normal 8 hour working day for a 5-day working week. The STEL (Short Term Exposure Limit) is an exposure value that may be equalled (but should not be exceeded) for no longer than 15 minutes and should not be repeated more than 4 times per day. There should be at least 60 minutes between successive exposures at the STEL. The term "peak "is used when the TWA limit, because of the rapid action of the substance, should never be exceeded, even briefly.
Engineering Controls:	Facilities storing or utilizing this material should be equipped with an eyewash facility and a safety shower. Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.
Personal Protection:	
Respiratory Protection:	Usually, no respirator is necessary when using this product. However, if you have any doubts refer to standard AS/NZ 1715 for appropriate equipment.
Skin Protection:	Wear protective clothing such as impervious gloves, waterproof hat, coat and trousers when using. Use impervious elbow-length gloves and facial protection when handling this product. See below for suitable material types. Protective clothing be made from the following materials: rubber, PVC. Refer to Standard AS 2161, AS2919 and AS.NZ2210.
Eye Protection:	Protective glasses or goggles should be worn when this product is being used. Emergency eye wash facilities are also recommended in an area close to where this product is being used. Refer to standard AS.NZ1337.
Dust:	N/A
General advice:	Eyebaths or eyewash stations and safety deluge showers should be provided near to where this product is being used. Do not eat, drink or smoke while using. Wash hands and exposed skin thoroughly with soap and water before meals and after work. Wash protective clothing daily after work. Launder contaminated clothing separately from household laundry.

9. PHYSICAL & CHEMICAL PROPERTIES

Appearance:	Yellow liquid
Odour:	Faint odour.
Odour Threshold:	Not determined.
pH:	7.0 – 10.0

Boiling Point:	Not determined
Melting Point:	Not determined
Freezing Point:	Not determined
Flash Point:	Will not flash
Flammability:	Not available
Upper/Lower Flammability or Exposure Limits:	Not available
Vapour Pressure:	Not available
Vapour Density:	Not volatile
Specific Gravity:	Not available
Water Solubility:	Soluble
Partition Coefficient:	Not determined
Auto-ignition Temperature:	Not applicable
Decomposition Temperature:	Not determined
Kinematic Viscosity:	Not available
Particle Characteristics:	No available

10. STABILITY & REACTIVITY

Stability:	Stable at room temperature in closed containers under normal storage and handling conditions. Can form crystals if stored at >8^{0}C. Crystals will redissolve after a few days at temperatures of 24^{0}C
Reactivity:	This product is unlikely to react or decompose under normal storage conditions. However, if you have any doubts, contact the supplier for advice on shelf-life.
Conditions to Avoid:	Dust generation, excess heat.
Incompatibility:	Strong oxidising agents.
Hazardous Decomposition Products:	Hydrogen chloride, carbon monoxide, irritating and toxic fumes and gases, carbon dioxide.
Hazardous Polymerisation:	This product will not undergo polymerisation reactions.

11. TOXOLOGICAL INFORMATION

ACUTE EFFECTS	
Oral Toxicity:	Rat, LD_{50} 300 2000 mg/kg
Dermal Toxicity:	Rabbit, LD_{50} >2000 mg/kg Non-irritation

Inhalation Toxicity:	Rat, LC_{50} >5.0 mg/L
Eye Corrosion/Irritation:	Rabbits Severe irritation
Skin Corrosion/Irritation:	Guinea pig, Non-irritation
CHRONIC EFFECTS:	
Carcinogenicity	Not considered to be carcinogenic
Reproductive Toxicity	No reproductive effects
Germ Cell Mutagenicity	Non mutagenic
Aspiration	Not applicable
STOT/SE	Not applicable
STOT/RE	Oral and dermal exposure at high doses can damage the liver.

12. ECOLOGICAL INFORMATION

Ecotoxicity (Aquatic and Terrestrial)	Toxic to aquatic life with long lasting effects. Toxic to terrestrial vertebrates. LD_{50} (rat) >2000 mg/kg. Very toxic to soil environment.
Persistence and Degradability:	Not readily biodegradable
Ecotoxicity Information	LC_{50} (96 hour – Rainbow Trout) >100 mg/l LC_{50} (31 days Daphnia) 235 mg/l Non-toxic to bees
Bioaccumulation:	Unlikely to occur
Mobility in soil:	No data
Other adverse effects:	Avoid release into the environment, soil, streams and waterways.

13. DISPOSAL CONSIDERATIONS

Disposal Method:	Triple rinse container and add rinsate to the spray tank where practical to do so. Dispose of product only by using in accordance with label directions, or through Agrecovery Chemical Recovery Service or alternative approved programs.
Container Disposal:	Triple rinse empty container and add rinsate to spray tank. Do not burn containers. Crush or puncture and bury in a suitably approved landfill or through Agrecovery recycling service.

14. TRANSPORT INFORMATION

This product is classified as a Dangerous Good for transport in NZ; NZS 5433:2012

Dangerous Goods Classification:	3082
Shipping Name:	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (2,4-D AMINE 720g/L)
Class:	9
UN Number:	3082
Packaging group:	III
Hazchem Code	3Z
Marine Pollutant:	Yes

15. REGULATORY INFORMATION

All of the significant ingredients in this formulation are compliant with NICNAS regulations.

ACVM Act 1997 Registration No:	P009889
HSNO Approval No:	HSR007878
Substance description:	Contains 720g/L 2,4-D as the dimethylamine salt in the form of a soluble concentrate.
Certified Handler:	Not required
Qualified Handler:	This product must be under the control of a suitably approved qualified handler during mixing, loading and use.
Tracking:	Not required
Compliance Certificate:	Not required
Quantity that must be secured:	Not required
Location Certificate	Not required
Emergency Response Plan:	1,000L
Secondary Containment:	1,000L
Signage:	1,000L
Fire Extinguishers:	No fire extinguisher requirement specified.
Record-keeping:	Yes, if 3L or more is applied within 24 hours, in a place where the substance is likely to enter air or water and leave the application area, a PCBU with Management

	o control of the substance must ensure that a written record is kept of each application of the substance.
Training requirements:	All workplace personnel handling this substance are required to be trained on the safe handling and PPE requirements for the hazards associated with this substance in accordance with Clause 4.5 of the Health and Safety at Work (Hazardous Substances) Regulations 2017. In addition, any person preparing the product for application or applying the product must be a qualified loader, contractor, or person as applicable. Refer to EPA Hazardous Substances (Hazardous Property Controls) Notice 2017 Part 4, Subpart C.
Other regulatory requirements:	Do not apply directly into or onto water. Use this product carefully. Do not contaminate aquatic environments with this product, spray drift or empty container. Spray drift or equipment contamination may cause serious damage to desirable plants. Do not allow spray drift outside the target area to occur. Avoid release into the environment other than for its intended use. Refer to www.epa.govt.nz for HSR007878 controls and Hazardous Substances Property Controls) Notice 2017.

16. OTHER INFORMATION

Glossary	
AEL	Acceptable Exposure Limit
DT_{50}	Time (days) for 50% loss
EC_{50}	Median effective concentration
EEL	Environmental Exposure Limit
EPA	Environment Protection Authority
GHS	Globally Harmonised System
HSNO	Hazardous Substances & New Organisms Act
Koc	Organic carbon partition coefficient
LFL	Lower Flammability Limit
LC_{50}	Lethal Concentration in air or water for 50% of test organisms
LD_{50}	Lethal Dose for 50% of test organisms
NOEL	No Observable Effect Level
OSHA	Occupational Safety & Health Administration (USA)
OSH or WorkSafe	WorkSafe New Zealand
PEL	Permissible Exposure Level
Pow	Octanol water partition coefficient (ratio of concentration of a chemical in octanol and water at equilibrium and at a specified temp.)

pH	Measure of acidity/alkalinity of a substance on a 1-14 scale (1=strong acid, 14 = strongly alkali)
STEL	Short Term Exposure Limit
TEL	Tolerable Exposure Limit
TLV	Threshold Limit Value – an exposure limit set by a competent authority
TWA	Time Weighted Average – average concentration of a chemical in air over a total exposure time (usually 8 hours)
UFL	Upper Flammability Limit
WES	Workplace Exposure Standard – set by WorkSafe NZ

The data in this Safety Data Sheet relates only to this product alone, and not to its use in combination with other substances or products. In such circumstances, assuming the combination is permitted (refer to product labels, and contact manufacturer if in doubt), be guided by the most hazardous of the substances involved and observe the more stringent of all hazard controls applicable to the products used.

Date of Safety Data Sheet: 31 October 2024
Reason for Revision: Version 2 - Full review and update to meet the new regulatory requirements.
Revision 1.2 - 1 July 2022 - Update Glossary. Update storage and handling. Updating format and logo
Revision 1.1 – 25 June 2021 – Update contact information.
Revision 1.0 – 17 June 2021 – Issued SDS

Further Information: Rainbow & Brown Limited
Toll-Free Phone (0508) 299 299