



SAFETY DATA SHEET

1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY

Product	Resolva Path & Patio Liquid Shots
Usage	Herbicide
Manufacturer	Westland Horticulture Ltd 14 Granville Industrial Estate Granville Road Dungannon County Tyrone BT70 1NJ
Email	customerservice@WestlandHorticulture.com
Emergency Tel	01480 443789 (UK)

2. HAZARDS IDENTIFICATION


Classification of the Substance or Mixture According to Regulation (EC) No 1272/2008:

Aquatic Acute 1	H400	Very toxic to aquatic life
Aquatic Chr 2	H411	Toxic to aquatic life with long lasting effects

Classification of the Substance or Mixture According to Directive 67/548/EEC or Directive 1999/45/EC:

N	Dangerous for the environment
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

Label Elements According to Regulation (EC) No 1272/2008:

Hazard Pictograms	GHS09 – Environmentally damaging	
Signal Word	Warning	
Hazard Statements	H410	Very toxic to aquatic life with long lasting effects
Precautionary Statements		
P273		Avoid release to the environment
P391		Collect spillage
P501		Dispose of contents/container to an approved waste disposal plant

Supplemental Information

EUH401 To avoid risks to human health and the environment, comply with the instructions for use.
Contains diquat dibromide. May produce an allergic reaction

Label Elements According to Directive 67/548/EEC or Directive 1999/45/EC:

Hazard Pictograms Dangerous for the environment



R- Phrases

R51/53 Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment

S- Phrases

S2 Keep out of reach of children
S13 Keep away from food, drink and animal feeding stuffs
S20/21 When using do not eat, drink or smoke
S35 This material and its container must be disposed of in a safe way
S57 Use appropriate container to avoid environmental contamination



Supplemental Information



To avoid risks to man and the environment, comply with the instructions for use
Contains diquat dibromide. May produce an allergic reaction

3. COMPOSITION/INFORMATION ON INGREDIENTS

Description Herbicide containing 153g/l glyphosate and 4.5 g/l diquat as a soluble concentrate

Hazardous Ingredients

Ingredient	Identifiers	Concentration %W/W	Warning Symbols	Directive 67/548/EEC	Regulation (EC) No 1272/2008 (CLP)
Glyphosate	EC: 213-997-4 CAS: 1071-83-6	16.2 % W/W		Xi; R41 N; R51/53	Eye Dam. 1 H318 Aquatic Chr. 2 H411
D-Glucopyranose, oligomeric, decyl octyl glycosides	CAS: 68515-73-1 REACH Reg. No: 01-2119488530-36	1-5% W/W		Xi; R41	Eye Dam. 1 H318

Ingredient	Identifiers	Concentration %W/W	Warning Symbols	Directive 67/548/EEC	Regulation (EC) No 1272/2008 (CLP)
Diquat Dibromide	EC: 201-579-4 CAS: 85-00-7	0.7% W/W	 	T+; R22 R26 R36/37/38 R43 R48/25 N; R50/53	Met. Corr. 1 H290 Acute Tox. 2 H330 Acute Tox. 4 H302 STOT RE1 H372 Eye Irrit. 2 H319 STOT SE3 H335 Skin Irrit. 2 H315 Skin Sens. 1 H317 Aquatic Acute 1 H400 Aquatic Chr. 1 H410

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

4. FIRST AID MEASURES

General Advice: Have the product container, label or Material Safety Data Sheet with you when calling a poison control center or physician, or going for treatment.

Inhalation: Move person to fresh air.
If breathing is irregular or stopped, administer artificial respiration.
Keep patient warm and at rest.
Call a physician or Poison Control Centre immediately.

Skin Contact: Take off all contaminated clothing immediately.
Wash off immediately with plenty of water.
If skin irritation persists call a physician.
Wash contaminated clothing before re-use.

Eye Contact: Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes.
Remove contact lenses and continue flushing.
Immediate medical attention is required.

Ingestion: If swallowed seek medical advice immediately and show container or label.
Do NOT induce vomiting.

Most Important Symptoms and Effects, Both Acute and Delayed:
Inflammation of the mouth, throat and esophagus
Gastrointestinal discomfort
Diarrhoea

Treatment (Medical Advice):
Administer either activated charcoal (100g for adults or 2g/kg body weight in children) or Fuller's Earth (15% solution; 1 litre for adults or 15ml/kg body weight in children)



Note: The use of gastric lavage without administration of an adsorbent has not shown any clinical benefit

Eye contact: Severe damage may be caused by apparently trivial contact and healing may be delayed. Medical supervision should continue until complete healing has occurred

5. FIRE FIGHTING MEASURES

Suitable Extinguishing Media:

Extinguishing media – small fires: Use water spray, alcohol-resistant foam dry chemical or carbon dioxide
.Extinguishing media – large fires: Alcohol resistant foam or Water spray

Extinguishing Media Which Must Not Be Used For Safety Reasons:

Do not use a solid water stream as it may scatter and spread fire

Specific Hazards Arising From the Substance or Mixture:

As the product contains combustible organic components, fire will produce dense black smoke containing hazardous products of combustion (see section 10).
Exposure to decomposition products may be a hazard to health

Special Protective Equipment for Fire Fighters:

Wear full protective clothing and self-contained breathing apparatus.

Further Information:

Do not allow run-off from fire fighting to enter drains or water courses.
Cool closed containers exposed to fire with water spray.

6. ACCIDENTAL RELEASE MEASURES

Personal Precautions, Protective Equipment and Emergency Procedures:

Refer to protective measures listed in sections 7 and 8.

Environmental Precautions:

Prevent further leakage or spillage if safe to do so.
Do not flush into surface water or sanitary sewer system.

Methods and Materials for Containment and Cleaning Up:

Contain Spillage, and then collect with non-combustible absorbent material (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13).

Additional Advice: If the product contaminates rivers and lakes or drains inform respective authorities.

7. HANDLING AND STORAGE

Handling:

- No special protective measures against fire required.
- Avoid contact with skin and eyes
- When using do not eat, drink or smoke
- For personal protection see Section 8

Storage:

- No special storage conditions required.
- Keep containers tightly closed in a dry, cool and well-ventilated place.
- Keep out of reach of children
- Keep away from food, drink and animal feeding stuffs
- Physically and chemically stable for at least two years when stored in the original unopened sales container at ambient temperatures.

Specific End Uses:

Use only as herbicide according to the instruction on the label

8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Control Parameters

Component(s)	Exposure Limit(s)	Type of exposure limit	Source
Glyphosate	10mg/m ³	8 h TWA	SYNGENTA
Diquat Dibromide	0.5 mg/m ³ 1 mg/m ³	8h TWA 15 min STEL	UK HSE

The following recommendations for exposure controls/personal protection are intended for the manufacture, formulation and packaging of the product

Exposure Controls

Engineering Measures: Containment and/or segregation is the most reliable technical protection measure if exposure cannot be eliminated.
The extent of these protection measures depends on the actual risks in use.
If airborne mists or vapors are generated, use local exhaust ventilation controls.
Assess exposure and use any additional measures to keep airborne levels below any relevant exposure limit.
Where necessary, seek additional occupational hygiene advice.



- Protective Measures:** The use of technical measures should always have priority over the use of personal protective equipment
When selecting personal protective equipment, seek appropriate professional advice
Personal protective equipment should be certified to appropriate standards
- Respiratory Protection:** No personal respiratory protective equipment normally required.
A particulate filter respirator may be necessary until effective technical measures are installed.
- Hand Protection:** Chemical resistant gloves are not usually required.
Select gloves based on the physical job requirements.
- Eye Protection:** Eye protection is not usually required
Follow any site specific eye protection policies
- Skin and Body Protection:** No special protective equipment required
Select skin and body protection based on the physical job requirements

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance: Amber/ brown liquid
Odour: Faint sweet

Other Properties:

	Value	Temperature
pH	6.1 at 1.0% w/v	25°C
Density	1.164 g/ml	20°C
Auto-ignition temperature	> 650 °C	
Flash point	>102°C	
Miscibility	Miscible	
Explosive properties	Not explosive	
Oxidizing properties	Not oxidizing	

10. STABILITY AND REACTIVITY

Hazardous Decomposition: Combustion or thermal decomposition will evolve toxic or irritant vapours

Hazardous Reactions: None known. Hazardous polymerization does not occur.

Conditions To Avoid: No information available, stable under normal conditions of use and storage.



11. TOXICOLOGICAL INFORMATION

- Acute Oral Toxicity:** LD50 Median lethal dose female rat, >5,000 mg/kg
- Acute Inhalation Toxicity:** LC50 Median lethal concentration male and female Rat, >2.56 mg/l, 4h
- Acute Dermal Toxicity:** LD50 Median lethal dose male and female Rat, >2,000 mg/kg
- Skin Irritation:** Rabbit: Non Irritating
- Serious Eye Irritation:** Rabbit: Mildly Irritating
- Respiratory or Skin Sensitization:** Buehler test guinea pig: not a skin sensitizer in animal tests.
- Long Term Toxicity:** Glyphosate and diquat dibromide did not show mutagenic, carcinogenic, teratogenic or reproductive toxicity effects in animal experiments.
- STOT- repeated exposure:** No adverse effect has been observed in chronic toxicity tests with glyphosate and diquat dibromide.
Ocular effects (cataracts) have been reported following long term oral exposure of laboratory animals to diquat dibromide

12. ECOLOGICAL INFORMATION

Toxicity

The toxicity data has been derived from components

- **Toxicity To Fish:** LC50 *Oncorhynchus mykiss* (rainbow trout), >100 mg/l, 96h
- **Toxicity To Aquatic Invertebrates:** EC50 *Daphnia magna* (water flea), 61 mg/l, 48h
- **Toxicity To Aquatic Plants:** EbC50 *Pseudokirchneriella subcapitata* (green algae), 2.8 mg/l, 96 h
ErC50 *Pseudokirchneriella subcapitata* (green algae), 4.9 mg/l, 96 h

Persistence and Degradability

- **Stability in Water:** Glyphosate Diammonium: Degradation half life: 302 d. Persistent in water.
Diquat dibromide: Degradation half life: >30 d. Persistent in water.
- **Stability in Soil:** Diquat dibromide: Degradation half life: 11-41y. Persistent in soil.
- **Mobility in Soil:** Glyphosate and Diquat are immobile in soil.

Bioaccumulative Potential: Glyphosate Diammonium: no data available
Diquat has low potential to bioaccumulate



Results of PBT and vPvB assessment: Glyphosate Diammonium: no data available
Diquat is not identified as PBT nor vPvB substances
D-Glucopyranose, oligomeric, decyl octyl glycosides is not identified as PBT nor vPvB substances

Other Information: Classification of the product is based on the summation of the concentrations of classified components

13. DISPOSAL CONSIDERATIONS

Product: Do not contaminate ponds, waterways or ditches with chemical or used container.
Do not dispose of waste into sewer.
Where possible recycling is preferred to disposal or incineration.
If recycling is not practicable, dispose of in compliance with local regulations.

Contaminated Packaging: Empty remaining contents.
Triple rinse containers. The rinse water should be added to the final spray solution. It must not be put down the drain, sink or toilet
Completely empty containers can be put in the bin or disposed of in compliance with applicable local regulations.
Do not reuse empty containers.

14. TRANSPORT INFORMATION

Land Transport (ADR /RID)

UN Number: UN 3082
UN Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIQUAT DIBROMIDE)
Transport hazard class: 9
Packing group: III
Labels: 9
Environmental hazards: Environmentally hazardous

Sea Transport (IMDG)

UN Number: UN 3082
UN Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIQUAT DIBROMIDE)
Transport hazard class: 9
Packing group: III
Labels: 9
Environmental hazards: Marine pollutant



Air Transport (IATA-DGR)

UN Number: UN 3082
UN Proper shipping name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (DIQUAT DIBROMIDE)
Transport hazard class: 9
Packing group: III
Labels: 9

None special precautions for user

15. REGULATORY INFORMATION

Registration Numbers: MAPP 15439
PCS 04489

Safety, health and environmental regulations/legislation specific for the substance of mixture:

This mixture is classified and labelled according to the CLP Regulation (EC) No 1272/2008

Contains: Glyphosate and diquat dibromide

Chemical Safety Assessment: A Chemical Safety Assessment is not required for this mixture

16. OTHER INFORMATION

Recommended uses and restrictions: Follow the instructions

Full texts of abbreviated H Statements referred to under Section 3:

H290 May be corrosive to metals
H302 Harmful if swallowed
H315 Causes skin irritation
H317 May cause an allergic skin reaction
H318 Causes serious eye damage
H319 Causes serious eye irritation
H330 Fatal if inhaled
H335 May cause respiratory irritation
H372 Causes damage to organs through prolonged or repeated exposure
H400 Very toxic to aquatic life
H410 Very toxic to aquatic life with long lasting effects
H411 Toxic to aquatic life with long lasting effect

Full text of R Phrases referred to under Section 3:

R22	Harmful if swallowed
R26	Very toxic by inhalation
R36/37/38	Irritating to eyes, respiratory system and skin
R41	Risk of serious damage to eyes
R43	May cause sensitisation by skin contact
R48/25	Toxic: danger of serious damage to health by prolonged exposure if swallowed
R50/53	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment
R51/53	Toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

Full text of Classifications

- **CLP/GHS:**
 - Acute Tox 2; Acute Toxicity, Category 2
 - Acute Tox 4; Acute Toxicity, Category 4
 - Aquatic Acute 1; Aquatic Acute Toxicity, Category 1
 - Aquatic Chr 1; Aquatic Chronic Toxicity, Category 1
 - Aquatic Chr 2; Aquatic Chronic Toxicity, Category 2
 - Eye Dam 1; Eye Damage, Category 1
 - Eye Irrit. 2; Eye Irritation, Category 2
 - Met. Corr. 1; Metal Corrosive, Category 1
 - Skin Corr 1A; Skin Corrosion, Category 1A
 - Skin Irrit. 2; Skin Irritation, Category 2
 - STOT RE 1; Specific Target Organ Toxicity – Repeated Exposure, Category 1
 - STOT SE 3; Specific Target Organ Toxicity – Single Exposure, Category 3
 - Skin Sens. 1; Skin Sensitising, Category 1

- **DSD/DPD:**
 - Xi; Irritant
 - N; Dangerous for the environment
 - T+; Very Toxic

Abbreviations and Acronyms

ADR	International Carriage of Dangerous Goods by Road
CAS No	Chemicals Abstract Service Registry Number
Directive 67/548/EEC	Dangerous Substances Directive (DSD)
EC No	European Community Number for chemicals within EU regulations
IATA-DGR	Dangerous Goods Regulations by the International Air Transport Association
IMDG Code	International Maritime Dangerous Goods Code
MAPP	Ministerially Approved Pesticide Product
PCS	Pesticide Control Service
PBT	Persistent, Bioaccumulative and Toxic Properties
Regulation (EC) No 1272/2008	Classification, Labelling and Packaging (CLP)
RID	International Transport of Dangerous Goods by Rail
vPvB	Very Persistent and Very Bioaccumulative Properties



Further information

Before using this product, ensure that you read and understand its label

MSDS information:

This Safety Data Sheet is prepared in compliance with Directive 1999/45/EC, 1272/2008 and Annex I of the REACH regulation 453/2010.

This safety data sheet provides health and safety information. This product is to be used in applications with best use practice. Individuals handling this product should be informed under COSHH of the recommended safety precautions and should have access to this information. The product information in this data sheet is to the best of our knowledge correct as at the date of publication. Westland Horticulture Limited does not accept responsibility for damage caused by incorrect use of this information.

Training and related advice:

This document contains important information to ensure the safe storage, handling and use of this product. It is the responsibility of your organisation to ensure that the information contained in this document is communicated to the end user and that all necessary training to enable the product to be used correctly has been given.

For further information please contact Westland Horticulture Ltd, 14 Granville Industrial Estate, Granville Road, Dungannon, County Tyrone, BT70 1NJ.