

# ENVOY<sup>+</sup>

## SPRAY ADJUVANT

### Australian Grown Canola Oil (467 g/L)

Carrier, maximises herbicide availability by reducing spray droplet evaporation through the air on leaf surfaces

Sticker, increases spray droplet retention on target, reduces droplet rebound

### Wetters and Spreaders (280 g/L)

reduces the tension in droplets allowing greater coverage

Surfactant, increases absorption through the leaf surface

### Buffering Agents (137 g/L)

Protects pH sensitive agricultural products from deactivation

Reduces high pH water (from >8 to 6-7) to protect alkali

## Product Description

Envoy Spray Adjuvant is a unique 3 in 1 product designed for knockdown herbicides based on Canola oil. It also contains a high concentration of Surfactants and a buffering system that is designed to enhance the performance of pH sensitive agricultural products.

## Testing and Evaluation

### Effect on droplet size

Envoy can be used to help reduce driftable fines. When using hydraulic nozzle such as XR11004, data shows that fines (<150 micron) are reduced significantly compared with water alone and to a similar extent compared with LI-700\*. When using AIXR nozzles, fines reduction is only evident at high pressure and when using TT nozzles Envoy and LI-700\* both increase the proportion of fines. For more information see [Adjuvant effect on spray droplets](http://www.vicchem.com) at [www.vicchem.com](http://www.vicchem.com).

### Use with Herbicides

Field and Glasshouse herbicide experiments consistently show that Envoy increases the efficacy of Glyphosate and other herbicides in a range of water qualities.

## Suggestions for Use

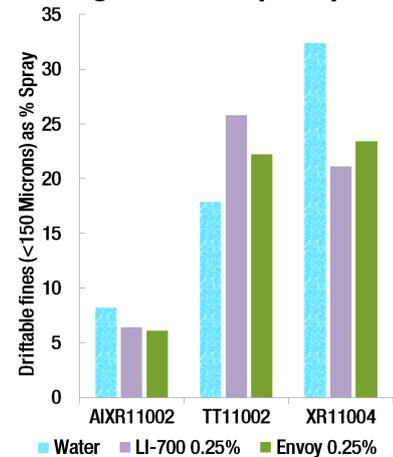
The recommended usage rate for all applications of Envoy is in the range 200 mL — 500 mL per 100 Litres (0.2 - 0.5%) of the spray solution. For crop safety always strictly follow the directions on the agricultural products label and if in doubt about using Envoy always test by application to a small area before using it on a full-scale basis.

**Caution: Envoy is not recommended for use on crops, fruit trees, vines or other desirable vegetation as foliar injury may result.**

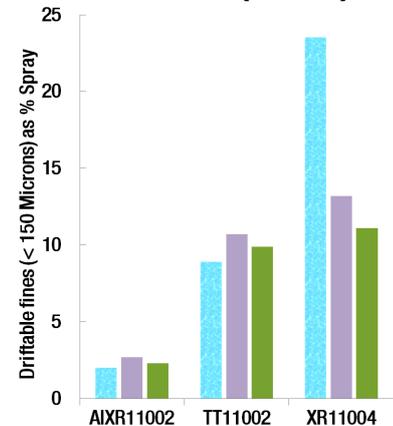
## Adjuvant effect on droplet size

% DRIFTABLE FINES

### High Pressure (5 bar)

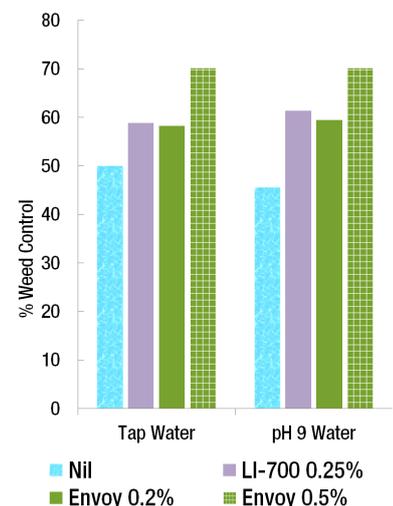


### Low Pressure (2.5 bar)



## Weed Control

Comparison of the adjuvants Envoy and LI-700 applied with Glyphosate at sub-lethal rate (70g a.i./ha) to Oats at 1.5 leaf stage in Tap and High pH Water in Glasshouse. % Control by fresh weight 14 days after application.



## pH Management

Most Canola oil based adjuvants contain only oil with minimal wetter. Envoy Spray Adjuvant goes further by including a high level of wetter (280g/L) and a buffering system that is designed to neutralise spray water and protect pH sensitive agricultural products. All agrichemicals have a pH range in which they work best. Some can be degraded and lose efficacy when pH is outside their preferred range. Most knockdown herbicides prefer neutral or slightly acidic pH. To minimise the loss of activity of sensitive agricultural products, simply add Envoy to the spray water first. Envoy is especially designed to bring the spray water's pH into a neutral range (pH 6-7.5) refer to Table 1.

**Table 1 – pH effect of adjuvants in different water quality**

Initial pH of Water	Water pH after Adjuvant Addition		
	Envoy 0.2%	Envoy 0.5%	Li-700 0.25%
4.0	6.3	6.4	3.48
7.0	6.5	6.4	3.53
9.0	7.1	6.7	3.54
9.0 / 340ppm CaCO <sub>3</sub>	7.3	6.9	3.42

Table 1 shows that Envoy neutralises both acidity and alkalinity of water. Eg. When 0.5% Envoy is added to water with pH 9.0 it neutralises the alkalinity and adjusts the water's pH to 6.7. Similarly 0.2% Envoy raises pH of water from 4.0 to 6.3. Note that LI-700 is an acidifying adjuvant which reduces pH to 3.4 – 3.5 which may be unsuitable for certain agrichemicals.

**Table 2 – pH effect of adjuvants with Glyphosate products**

Glyphosate product / rate	Water pH after Adjuvant Addition			
	No Adjuvant	Envoy 0.2%	Envoy 0.5%	Li-700 0.25%
No Product		6.49	6.36	3.53
WipeOut 1%	4.94	4.98	5.04	4.64
WipeOut 2%	4.93	4.96	4.98	4.73

Table 2 shows that Glyphosate products have a significant effect on pH typically near pH 5 regardless of dilution rate. Envoy will tend to buffer toward neutral whilst the acidifying adjuvant LI-700 reduces pH further.

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## The Company

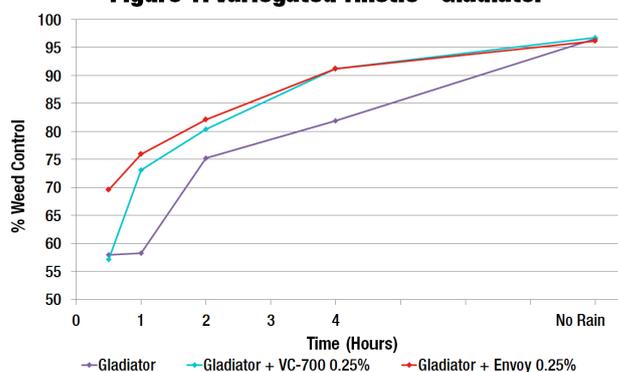
Victorian Chemical Company is committed to providing quality products and professional and friendly service, that our customers can confidently rely on to add value to their businesses. In order to achieve this goal we will continue to develop, our understanding of our customer's requirements, the operations of our company and our technical expertise.

## Rainfastness

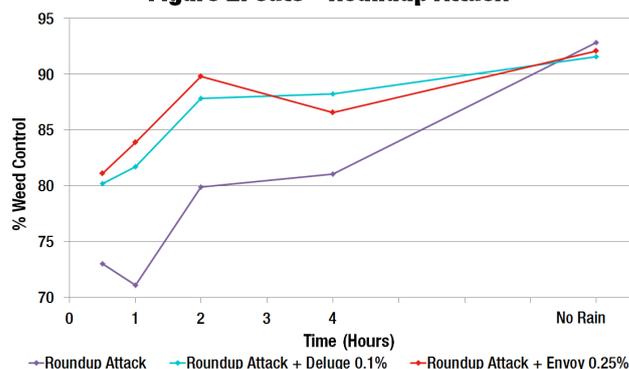
### Glasshouse Trial with Simulated Rain applied 0.5, 1, 2 & 4h after Glyphosate application

Figures 1 & 2 show data from Glasshouse trial where adjuvants have been shown to improve rainfastness of the Glyphosate products Gladiator\* and RoundUp\* Attack. Both graphs show near complete weed control after 14 days when no rain was applied, and herbicides without adjuvant equal those with adjuvant as label rates of herbicide (540g a.i./ha) were applied to highly susceptible weeds in near perfect conditions. Simulated rainfall significantly affects Glyphosate efficacy as can be seen when rain applied 4h after application, the weed control for either species was reduced to around 80% and when rain was applied after 1h to weed control was further reduced 58 and 71%. The addition of adjuvants and in particular the oil-based adjuvant Envoy resulted in better weed control at all rain intervals for both species indicating that Envoy increases the speed of uptake or protects Glyphosate from wash off.

**Figure 1: Variegated Thistle - Gladiator**



**Figure 2: Oats - Roundup Attack**



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