Adsee™ AMP40

All-in-one adjuvant – a formulators dream ...
Adsee AMP40

Adsee AMP40 is an all-in-one biodegradable adjuvant for crop protection formulations. It is a salt-free amphoteric surfactant, designed to be used as an adjuvant for both in-can and tank-mix applications.

Key benefits

- Versatile - improves efficacy when used with fungicides and herbicides
- Compatibilizer, hydrotrope
- Adds humectancy to formulations and softens/hydrates wax layer
- Readily biodegradable and not persistent, addresses concerns over bio accumulative formulation aids
- Considered "clean label" - no eye or skin irritation, no classified ingredients
- Low foaming
- Soluble in strong caustic or acid solutions

Typical properties

- Appearance: clear liquid
- CMC: 13 g/L
- Color: max 500 Hazen (20% in water)
- Density: 1.08 g/L at 20°C
- Foaming: 0 ml after 5 mins
- pH: 8.5-9.5 (20% in water)
- Pour point: -8°C
- Solid content: 40%
- Surface tension: 64 mN/m at 0.1 w%
- Viscosity*: max 100 cps at 20°C
- Water uptake: 22% after 48 hrs
- Surface tension at 0.1 wt%: 64 mN/m

Regulatory

- TSCA complaint
- REACH registered
- Listed in NZIoC / IECSC / ISHL / ENCS / KECl Chemical Inventory

Tank-mix compatibility

2-Way compatibility challenge

WDG sample
- Farmozine 900 WDG (Atrazine)

Gly-IPA 480 samples
- TAE blend, 15%
- Adsee AMP40, 15%

Dilution test set
- Each cylinder is filled with Farmozine WDG and inverted 10x
- Addition of each Gly-IPA sample in to each cylinder
- Inverted 10x and left to stand at RT

Adsee AMP40 is suitable compatibilizer for Atrazine and Glyphosate combos.

* Brookfield DV-III Plus Rheometer; SC-18 spindle @ 25 rpm
Bio-efficacy against powdery mildew on grapes

**Target pest:** Powdery mildew (Erysiphe necator)

**Fungicide:** Azoxystrobin 250 g/L SC

**Doses:** 0.02 % (v/v) Azoxystrobin along with 0.03 % (v/v) adjuvant in 15 L water

In addition to Azoxystrobin 250 g/L SC, trials with Fluopyram + Tebuconazole (200+200) g/L SC, Metrafenone 50 g/L SC, Dimethomorph 50 g/kg WP, Thiophanate-methyl 700 WP have shown that Adsee AMP 40, when used as a tank-mix adjuvant, shows superior control over early and late blight as well as powdery mildew.

When Adsee AMP40 used, nearly 20% increase in harvestable yield can be achieved. No phytotoxicity (no chlorosis, burning, necrosis, epinasty or russeting) is caused by any of the adjuvants tested.

Adsee AMP40 can be readily formulated in-can.

**Glyphosate trials**

Adsee AMP40 is a sustainable alternative to current adjuvants for Glyphosate.

<table>
<thead>
<tr>
<th>Formulation</th>
<th>3 days</th>
<th>5 days</th>
<th>7 days</th>
<th>10 days</th>
</tr>
</thead>
<tbody>
<tr>
<td>RoundUp</td>
<td>3.7</td>
<td>6.6</td>
<td>7.3</td>
<td>7.7</td>
</tr>
<tr>
<td>Face 48</td>
<td>4.2</td>
<td>6.5</td>
<td>7.1</td>
<td>7.6</td>
</tr>
<tr>
<td>Adsee 1629 (8%)</td>
<td>4.7</td>
<td>7.5</td>
<td>7.6</td>
<td>8.3</td>
</tr>
<tr>
<td>Adsee 1629 (15%)</td>
<td>6.8</td>
<td>9.1</td>
<td>9.2</td>
<td>9.2</td>
</tr>
<tr>
<td>Witcamine 4130A (5%)</td>
<td>3.0</td>
<td>7.6</td>
<td>8.0</td>
<td>8.1</td>
</tr>
<tr>
<td>Witcamine 4130A (10%)</td>
<td>5.3</td>
<td>8.7</td>
<td>8.8</td>
<td>9.2</td>
</tr>
<tr>
<td>Adsee C-70A (10%)</td>
<td>7.1</td>
<td>9.1</td>
<td>9.2</td>
<td>9.3</td>
</tr>
<tr>
<td>Adsee AMP40 (10%)</td>
<td>6.5</td>
<td>8.6</td>
<td>8.6</td>
<td>8.8</td>
</tr>
<tr>
<td>Control</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

0 = unable to control the weeds, 10 = completely controls the weeds

Adsee 1629 C-16 trimethyl ammonium chloride
Witcamine 4130A TAE
Adsee C-70A coco amidoethylamine

Place: KAWA – International Chemie, Thailand
Design: Randomized Block Design
Replications: 4
Water volume: 500 L/ha

Glufosinate NH₄ trials

Efficacy comparison of Adsee AMP40 in-can adjuvant vs benchmark.

Field trials show that Glufosinate-NH₄ 150 SL formulated with 15% Adsee AMP40 has fast knockdown effect at lower dosage of adjuvant compared to benchmark.

Glufosinate-NH4 150SL with adjuvant

<table>
<thead>
<tr>
<th>Day after application</th>
<th>Adsee AMP40</th>
<th>Basta</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>20</td>
<td>60</td>
</tr>
<tr>
<td>2</td>
<td>40</td>
<td>80</td>
</tr>
<tr>
<td>3</td>
<td>60</td>
<td>100</td>
</tr>
</tbody>
</table>

Trial location: Medan, Indonesia
Plot size: 7.56 m x 10 m
Assessment period: up to 20 days
Replicates: 3
Crop land: corn
Applications rate: 2 L/ha
Water use: 400 L/ha
Weed type: Amaranthus spp, Altherranthera spp, Borrelia sp, Calopogonium spp, Cleome rutidospemae, Commeling benghalensi, Cyndon dacliton, Digitaria ciliaris, Galinsaga parviflora, Rodbulia
About Nouryon
We are a global specialty chemicals leader. Markets worldwide rely on our essential chemistry in the manufacture of everyday products such as paper, plastics, building materials, food, pharmaceuticals, and personal care items. Building on our nearly 400-year history, the dedication of our 10,000 employees, and our shared commitment to business growth, strong financial performance, safety, sustainability, and innovation, we have established a world-class business and built strong partnerships with our customers.
We operate in over 80 countries around the world and our portfolio of industry-leading brands includes Eka, Dissolvine, Trigonox, and Berol.

For more information visit nouryon.com.