

Improving the efficacy of agrochemicals

with CITROFOL® AI

CITROFOL® AI is a biodegradable and label-free adjuvant that enhances the effectiveness of herbicides while being gentle on non-target plants.

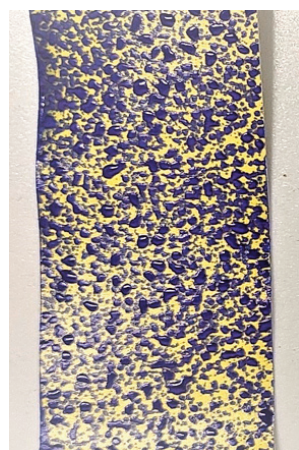
Benefits at a glance

Simple formulation

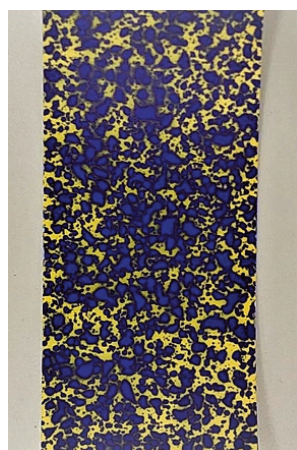
Due to its partial water-solubility up to 58 g/L, CITROFOL® AI fully dissolves when added to the spray tank in typical use rates. Therefore, no emulsifier is needed.

Excellent sprayability

CITROFOL® AI easily mixes with water and improves spray coverage due to its wetting effect.



Spray pattern of active substance in water



Spray pattern of active substance in water + 0.4 wt% CITROFOL® AI

Improvement of agrochemical efficacy

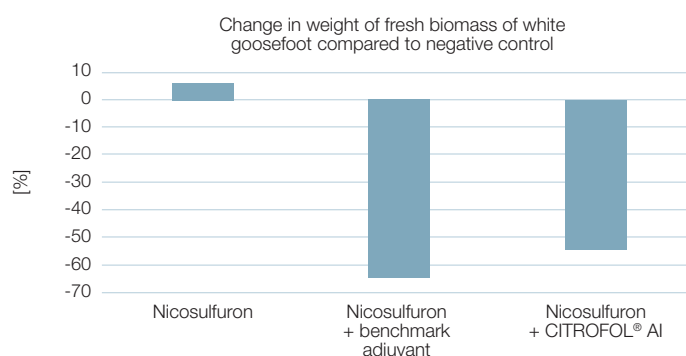
CITROFOL® AI enhances the phytotoxic effect of the herbicide nicosulfuron against white goosefoot, which serves as a model weed.

This enhancement is observed through leaf discolouration, necrosis, and a reduction in fresh biomass of the model weed.

The herbicidal effect achieved with CITROFOL® AI is comparable to that of the benchmark adjuvant, despite using a lower application rate.

Treatment	Phytoxicity as % leaf surface 0 DAT*	Phytoxicity as % leaf surface 7 DAT*	Phytoxicity as % leaf surface 14 DAT*
Negative control (water)	0.00 a	0.00 b	0.00 b
Nicosulfuron	0.00 a	3.50 b	4.00 ab
Nicosulfuron + benchmark adjuvant	0.00 a	8.25 a	8.25 a
Nicosulfuron + CITROFOL® AI	0.00 a	8.00 a	9.25 a

*DAT = days after treatment



Jungbunzlauer ingredients

Name	CITROFOL® AI (Triethyl Citrate)
Function	Solvent, adjuvant
Biodegradability ¹⁾	Readily biodegradable
CAS number	77-93-0
EC number	201-070-7
REACH number	01-2119955435-32-0000

¹⁾ Method: OECD test guideline 301

Value proposition

Improved efficacy of herbicides

- Improvement of herbicidal effect of nicosulfuron on weed by over 50% (fresh biomass): comparable to benchmark adjuvant
- Slightly more gentle to non-target plant (maize) than benchmark adjuvant

Technical benefits

- No emulsifier needed when diluting CITROFOL® AI into the spray tank
- Easily pourable over wide temperature range
- Viscosity adjustable with inorganic thickeners (protocols available)
- Excellent sprayability

Bio-based, biodegradable and safe

- Non-hazardous according to EU GHS
- 100% bio-based
- Certified biobased according to USDA (United States Department of Agriculture)
- FIFRA-listed (Federal Insecticide, Fungicide, and Rodenticide Act)
- Non-flammable
- Non-volatile organic compound (non-VOC)
- Microplastic free