

# BREAK-THRU<sup>®</sup> SP

Environmentally friendly adjuvants for  
agricultural tank mix and in-can applications



# Environmentally friendly Sticker Penetrants for agrochemical tank-mix and in-can applications

The new BREAK-THRU® SP 131 and BREAK-THRU® SP 133 adjuvants are designed to improve performance of agricultural formulations in tank mix and in-can applications. BREAK-THRU® SP stands for Sticker Penetrants because these products improve the adhesion and deposition of the agrochemical spray and facilitate the uptake of pesticides.

At the same time they meet today's requirements for product safety, environmentally friendliness and handling convenience. BREAK-THRU® SP adjuvants are solutions to our consumer's increasing awareness of the environmental, social and ethical impacts of the products they buy.

Both products are based on polyglycerol esters: derived from mild chemistry, eco-efficient and toxicologically benign. These sustainable adjuvants are capable of meeting current and future requirements of both consumers and legislation. As safe and environmentally friendly adjuvants, they are viable alternatives to alkylphenol or tallow amine ethoxylates.

Due to their excellent compatibility with hydrophilic and lipophilic active ingredients, BREAK-THRU® SP 131 and BREAK-THRU® SP 133 adjuvants demonstrate significant enhancement in efficacy with a broad range of herbicides, insecticides and fungicides.

## BREAK-THRU® SP 131 and SP 133 product profiles

### BREAK-THRU® SP 131 adjuvant

- 90 % active matter
- Water dispersible
- Enhanced spreading on leaf surfaces
- OMRI listed

### BREAK-THRU® SP 133 adjuvant

- 100 % active matter
- Water dispersible
- Reduces the amount of particles prone to drift

BREAK-THRU® SP adjuvants are derived from renewable resources and are stable against hydrolysis between pH 4 to 9.



### Benefits of BREAK-THRU® SP adjuvants

- Easy to handle
- Improve the adhesion, retention and coverage of agrochemical sprays
- Activate the uptake and penetration of pesticides
- Low foam tendency
- Improve the efficacy of pesticide formulations
- Environmentally friendly, benign toxicological profile and biodegradable

## Enhanced uptake and penetration

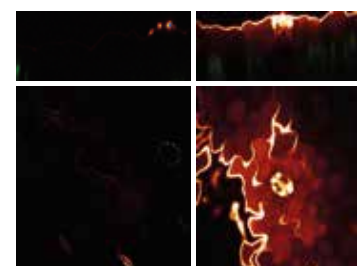
BREAK-THRU® SP adjuvants improve adhesion, retention and penetration of agrochemical sprays on difficult to wet species. This can be demonstrated by monitoring the uptake of a hydrophilic pesticide mimic, Oregon Green® Dye<sup>1</sup> into bean and wheat leaves via confocal laser scanning microscopy (CLSM). Both adjuvants activate uptake of active ingredients via diffusion through the cuticle and epidermal cell vacuoles.

Uptake of pesticide mimic [%;24h]

Adjuvant	Bean	Wheat
Oregon Green® Dye <sup>1</sup>	6.6	0.7
BREAK-THRU® SP 131	17.7	8.2
BREAK-THRU® SP 133	15.8	7.5

### Mode of action

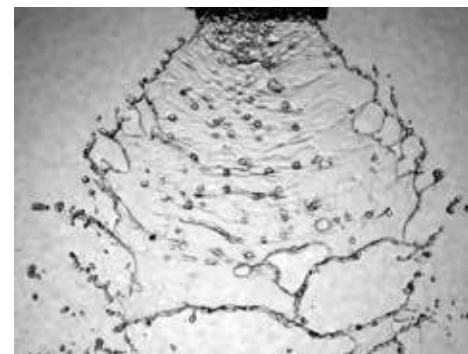
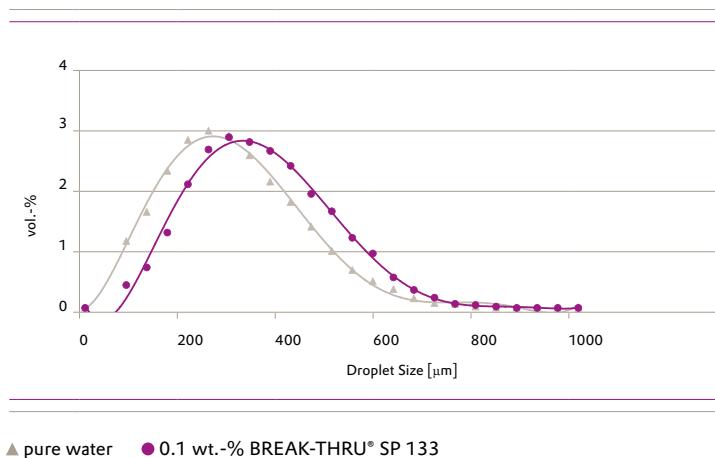
The images to the right are made possible by CLSM and demonstrate the penetration of Oregon Green® Dye<sup>1</sup> into a wheat leaf, two hours after application, both with (images on the right) and without (images on the left) the addition of 0.1% BREAK-THRU® SP Sticker Penetrant. The images on the top show vertical penetration while the images on the bottom show penetration horizontally.



CLSM with Oregon Green® Dye<sup>1</sup>

## Improved spray drift behavior

The addition of BREAK-THRU® SP 133 can increase the droplet size and thus reduce the amount of particles prone to drift.



Spray trial flat spray nozzle type XR 11003 from TeeJet®.

<sup>1</sup>Oregon Green® is a registered trademark of Molecular Probes, Inc.

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