



CROP SOLUTIONS

TANK MIX ADJUVANTS



OXITENO

Evolution by chemistry

TECHNOLOGY WE SEED AND HARVEST TOGETHER

Have you noticed that,
for a plant to sprout,
the land works with
the seed and the water
works with the land?
This is the way it is in
the field: interaction and
collaboration produce
prosperity for everyone.

This is our inspiration.
We work side by side
with our customers
and partners by
investing in the
development of
innovative solutions
that meet their
challenges and improve
productivity in all fields.

CHALLENGES

The evolving needs of agriculture requires innovative and sustainable solutions that will help farmers to shape the agriculture of tomorrow.



Agricultural production must keep pace as demand for the quantity and quality of food grows. Changes in climate and increasing pressure on natural resources challenge the availability of water, land and biodiversity necessary for productive, sustainable agriculture.

Designed to enhance the application performance of crop protection products, our broad portfolio of adjuvants can be used in agrochemical formulations to improve mixing and handling, safety and effectiveness of active ingredients while maximizing distribution over the target. As not all adjuvants can be incorporated “in-can”, spray adjuvants are added in the tank mix to boost field performance, enabling farmers to get the most from each application.



Spraying operations, from handling concentrates and tank filling to achieving maximum efficacy, include various inefficiencies. Our tank mix adjuvants portfolio provides both single components and full solutions for the encountered problems.

SUSTAINABILITY



Develop solutions that enables the full potential of our customers' formulations in the field, delivering more productivity with less environmental impact.

KEY ENABLERS



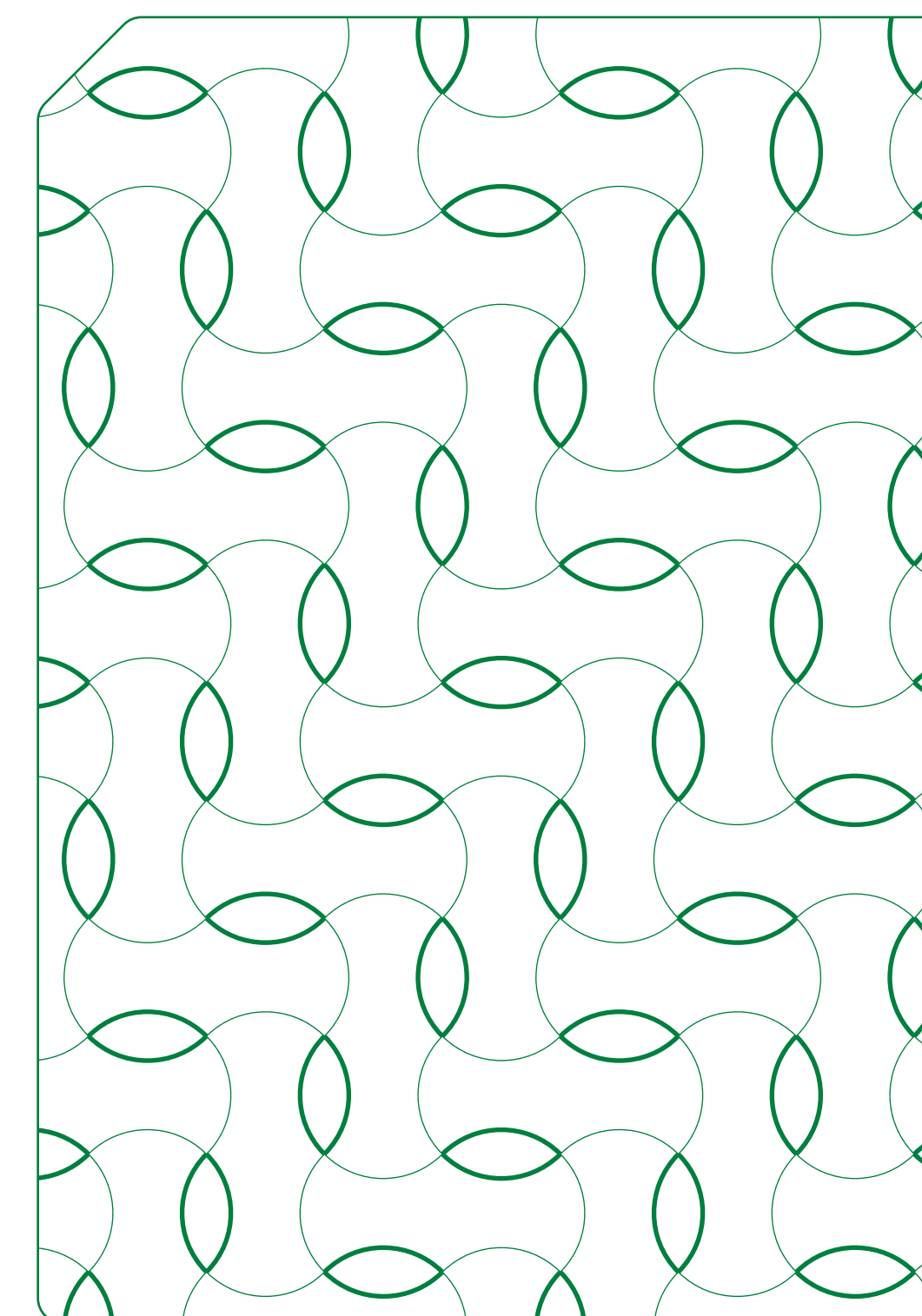
**Delivering
food for the
World**



**Reduce
environmental
& social impact**



**Efficient use of
resources
in the field**

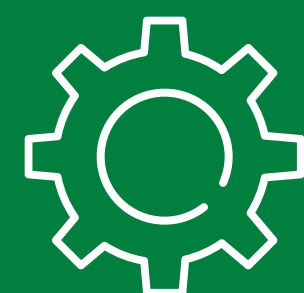


VALUE PROPOSITION

Oxiteno's purpose is to advance agriculture through technology and added value solutions that maximize the application of agrochemicals in the field, based on **three pillars**:

Collaborative Development

Strong in-house R&D capabilities and expertise



Operational Excellence

Service and Proximity

Understand needs and deliver expectations



Customer Intimacy

Application Know-how

Innovation and flexibility for tailor-made solutions



Product Leadership

Solutions provider for tank mix adjuvants

R&D CAPABILITIES

Oxiten's strong research and development focus drives technologies and innovations from the laboratory to the farm. Ultimately, our capabilities are built to offer our customers a partnership for the collaborative development of unique solutions.



In-house Greenhouse

Field conditions are always unpredictable, which can implicate in application's efficacy. In order to simulate the most accurate field application conditions, Oxiten has established a best-in-class greenhouse in Mauá, Brazil.



Microbiology Lab

High-end laboratory of microbiology in order to study and quantify Tank Mix Adjuvants compatibility with biologicals.

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Spray chamber

An adjuvancy goes beyond formulation. Spray application quality is essential to ensure successful application. We can simulate ground application and rainfastness for different required application features: boom height, pressures, nozzles, spray volume, etc.



Droplet size distribution

Droplet size distribution, relative span, % of fines and drift potential by imaging analysis (Oxford Laser).

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Dynamic and equilibrium surface tension

Surface tension is a key parameter strongly correlated to wetting, spreading and adhesion of agrochemicals.



Contact angle

Droplet contact angle on leaves and standard hydrophobic surfaces. Wetting and spreading properties are correlated to contact angle.

ABOUT ADJUVANTS

Tank mix adjuvants are designed to achieve biological, chemical or physical effects to improve the efficiency of crop protection operation and end-results.

The science behind the need for adjuvants is multidisciplinary, but formulation chemistry is fundamental as tank mix adjuvants can be combined to optimize performance for each active ingredient and spray application.



GLYPHOSATE ADJ

Adjuvants that can
improve its efficacy

Glyphosate applications are commonly performed with an adjuvant included in the formulation, which can define the level of success of weed control.

The use of the right adjuvant implies in different benefits for the application, such as improved rainfastness, better glyphosate spreadability and adhesion over the leaf surface and more effective penetration.

PRODUCT	DESCRIPTION
SURFOM® 5204 CS	Adjuvant for IPA glyphosate standard load (up to 360 g/L acid equivalent)
SURFOM® CS 8145	Competitive adjuvant for IPA glyphosate standard load (up to 360 g/L acid equivalent)
SURFOM® CS 8892	Competitive adjuvant for glyphosate salts (IPA or K) high load (up to 540 g/L acid equivalent)
SURFOM® CS 8172	Competitive adjuvant for glyphosate salts (IPA or K) high load (up to 540 g/L acid equivalent)
SURFOM® CS 8934	Adjuvant for glyphosate salts (IPA or K) high load (up to 540 g/L acid equivalent)



UPTAKE ENHANCER

Products that can
increase the availability
of pesticides

Our products can boost systemic pesticides application efficacy by Influencing factors behind active ingredient’s penetration.

PRODUCT	DESCRIPTION
ULTRAMINA® CO 20	Coco amine 2 EO
ULTRAMINA® TA 50	Tallow amine 5 EO
ULTRAMINA® TA 150	Tallow amine 15 EO
ULTRAMINA® TA 200	Tallow amine 20 EO
ALKEST® TW 20	Sorbitan monolaurate 20 EO
ALKEST® TW 80	Sorbitan monooleate 20 EO
SURFOM® 8928	Nonionic Surfactant

DRIFT

Adjuvants that
balance driftable
fine droplets
reduction and efficacy

The primary function of the drift control adjuvant is to reduce the amount of off-target drift, thereby increasing the amount of pesticides deposited on target surfaces.

The reduction of drift can be achieved through reduction of fine spray droplets, however fine droplets are, in many cases, desirable for better leaf coverage. Thus, our products offer a balance of droplet size for a high coverage while reducing off-target spray movement.

PRODUCT

DESCRIPTION

SURFOM® DRT 8575

Drift control adjuvant



WETTING

Products that improves droplet's leaf surface coverage

The reduction in the surface tension and contact angle promoted by our products improves the coverage area on the leaf, increasing the efficacy by a larger distribution of the active ingredient across the leaf.

PRODUCT	DESCRIPTION
ALKOSYNT® 150	Undecyl alcohol 5 EO
ALKOSYNT® 170	Undecyl alcohol 7 EO
ALKOSYNT® 9160	C9-c11 alcohol 6 EO
ALKOSYNT® ID 30	Isodecyl alcohol 3 EO
ALKOSYNT® ID 60	Isodecyl alcohol 6 EO
ALKOSYNT® IT 60	Isotridecyl alcohol 6 EO
ALKOSYNT® IT 90	Isotridecyl alcohol 9 EO
ALKOSYNT® IT 120	Isotridecyl alcohol 12 EO
ALKONAT® L 70	Lauryl alcohol 7 EO

ELECTROLYTE RESISTANCE

Products that contribute to tank mix compatibility

Tank-mixing agrochemicals is a convenient way to reduce labor and equipment use. It provides an efficient method of fertilizing while applying pesticides, or a broader spectrum of control when two or more pesticides are mixed.

Our products are capable of keeping a homogeneous and precipitate-free spray mix when using formulations with high electrolyte content.

PRODUCT	DESCRIPTION
SURFOM® CS 8902	C8-C10 Alkyl polyglucoside, 50% in water
SURFOM® CS 8152	Full solution for Glufosinate SL
SURFOM® SC 8223	Acrylic polymer
SURFOM® SC 8155	Phosphate Ester Surfactant
ALKEST® TW 20	Sorbitan monolaurate 20 EO

Surfactants that reduce the surface tension and dissipate kinetic energy of the droplet during application, increasing the availability of the active ingredient for the crop even when rainfall occurs after application.

PRODUCT	DESCRIPTION
ALKOSYNT® ID 30	Isodecyl alcohol 3 EO
ALKOSYNT® ID 60	Isodecyl alcohol 6 EO
ALKOSYNT® IT 60	Isotridecyl alcohol 6 EO
ALKOSYNT® IT 90	Isotridecyl alcohol 9 EO
ALKOSYNT® IT 120	Isotridecyl alcohol 12 EO
ALKONAT® L 70	Lauryl alcohol 7 EO
ULTRAMINA® CO 20	Coco amine 2 EO
SURFOM® CE 8056	Emulsifier for ECs in vegetable oil methyl ester, free from alkylphenol ethoxylated

RETENTION

Products that prevent run-off of the droplets from leaf surface

TANK MIX ADJUVANTS COMPONENTS

Our broad portfolio can be combined in:

PRODUCT	DESCRIPTION	APPEARANCE 25°C/77°F	SURFACTANT TYPE	HLB	SURFACE TENSION 0.1% (mn/m)	GLYPHOSATE ADJUVANT	UPTAKE ENHANCER	DRIFT REDUCTION	WETTING	ELECTROLYTE RESISTANCE	RETENTION
ALKOSYNT® 150	Undecyl alcohol 5 EO	Liquid	Nonionic	11.2	26.9				X		
ALKOSYNT® 170	Undecyl alcohol 7 EO	Liquid	Nonionic	12.8	28.2				X		
ALKOSYNT® 9160	C9-c11 alcohol 6 EO	Liquid	Nonionic	12.4	27.2				X		
ALKOSYNT® ID 30	Isodecyl alcohol 3 EO	Liquid	Nonionic	9.1	26.0				X		
ALKOSYNT® ID 60	Isodecyl alcohol 6 EO	Liquid	Nonionic	12.5	26.6				X		
ALKOSYNT® IT 60	Isotridecyl alcohol 6 EO	Liquid	Nonionic	11.2	27,2				X		
ALKOSYNT® IT 90	Isotridecyl alcohol 9 EO	Liquid	Nonionic	14.5	28.0				X		
ALKOSYNT® IT 120	Isotridecyl alcohol 12 EO	Liquid	Nonionic	14.5	30.1				X		
ALKONAT® L 70	Lauryl alcohol 7 EO	Liquid	Nonionic	12.1	39.9				X		
ULTRAMINA® CO 20	Coco amine 2 EO	Liquid	Nonionic	-	27.8	X	X				

Consult your local Oxiteno focal point for regulatory availability

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ULTRAMINA® TA 50	Tallow amine 5 EO	Liquid	Nonionic	-	31.3	X	X				
ULTRAMINA® TA 150	Tallow amine 15 EO	Liquid	Nonionic	-	40.9	X	X				
ULTRAMINA® TA 200	Tallow amine 20 EO	Liquid	Nonionic	-	42.3	X	X				
ULTRARIC® PE 62	EO/PO block copolymer	Liquid	Nonionic	7.3	39.9				X		
ULTRARIC® PE 64	EO/PO block copolymer	Liquid	Nonionic	15.8	40.0				X		
ALKEST® TW 20	Sorbitan monolaurate 20 EO	Liquid	Nonionic	16.7	36.5		X			X	
ALKEST® TW 80	Sorbitan monooleate 20 EO	Liquid	Nonionic	15.0	37.5		X			X	
SURFOM® 8928	Nonionic Surfactant	Liquid	Nonionic	17.0	30.6	X	X		X		
SURFOM® SC 8155	Phosphate Ester Surfactant	Liquid	Anionic	N/A	28.0						X
SURFOM® SC 8243	Phosphate Ester Surfactant	Liquid	Anionic	N/A	27.9				X		X

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SURFOM® 5204 CS	Adjuvant for IPA glyphosate standard load (up to 360 g/L acid equivalent)	Liquid	Blend	N/A	42.0	X			X		X
SURFOM® CS 8145	Competitive adjuvant for IPA glyphosate standard load (up to 360 g/L acid equivalent)	Liquid	Blend	N/A	39.1	X	X				
SURFOM® CS 8892	Competitive adjuvant for glyphosate salts (IPA or K) high load (up to 540 g/L acid equivalent)	Liquid	Blend	N/A	34.6	X	X				
SURFOM® CS 8934	Adjuvant for glyphosate salts (IPA or K) high load (up to 540 g/L acid equivalent)	Liquid	Blend	N/A	31.7	X	X				
SURFOM® CS 8152	Full solution for Glufosinate SL	Liquid	Blend	N/A	34.6	X			X	X	

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SURFOM® CE 1180	Emulsifier for crop oil concentrate (mineral oil), APE free	Liquid	Blend	N/A	33.0		X		X		
SURFOM® CE 8056	Emulsifier for ECs in vegetable oil methyl ester, free from alkylphenol ethoxylated	Liquid	Blend	N/A	31.4	X	X				X
SURFOM® ADJ 8871 series	Adjuvant for high surfactant oil concentrate (MSO), APE free	Liquid	Blend	N/A	29.4	X					X
SURFOM® DRT 8575	Drift control adjuvant	Liquid	Blend	N/A	33.9	X	X	X			X
SURFOM® CS 8902	C8-C10 Alkyl polyglucoside, 50 % in water	Liquid	Nonionic	13	32.1	X	X		X	X	
SURFOM® SC 8223	Acrylic polymer	Liquid	Nonionic	13.1	71.0					X	

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SURFOM[®] ADJ LINE

Complete solutions
for existing and
future challenges

In the next few years farmers will face key transformations in crop protection management practices driven by the emerging resistance in insects, weeds and agricultural pathogens, as well as increased regulatory and new customer demands. This complex scenario requires innovative and creative technologies.

Oxiten's solutions for the tank mix adjuvant market are designed to support farmers in efficiently and sustainably managing the field of the future.

**Our full-solutions portfolio includes
both activator and utility adjuvants.**







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DISCLAIMER

This information is provided in good faith, based on Oxiteno's current knowledge of the subject and is purely indicative. No information, including suggestions for using the products, should preclude experimental testing and verification, which are essential to ensuring the suitability of the products for each specific application. All users must also respect local laws and obtain all the necessary permits. When handling the product, consult the safety data sheet. If you have any questions or additional needs, please contact Oxiteno through our customer service channels.