

agricultural chemicals

—
reference guide



ashland.com / efficacy usability allure integrity profitability™

always solving™

Ashland has wide range of ingredients for agrochemical formulations, we want to find an answer to your question and a solution to your challenge. Discover our entire portfolio in this brochure. From the seed of an idea comes a bountiful harvest of solutions when you work with this portfolio and our passionate team of solvers.

agriculture at Ashland

Ashland offers a range of high performing chemistry that helps formulators improve the performance of crop protection chemicals and seed treatments.

We offer our Agrimer™ family of polymers based on pyrrolidone technology, Agrimax™ cellulose ether polymers, AgsolEx™ solvents.

Our products can be used in most every formulary type, including emulsifiable concentrates, suspended concentrates, soluble liquids and powders, water-dispersible granules and seed coatings. They function as adjuvants, binders, rheology modifiers, film formers, complexing agents, wetting agents, dispersants, emulsifiers, among other applications.

More important, our chemistries for agriculture impart a long list of benefits to formulations, including rainfastness; superior spread, stick, and penetration; glossy, transparent, oxygen-permeable, water-proof films; and excellent adhesive properties for seed coating.

This Agricultural Chemicals Reference Guide is organized into four sections according to product group. The sections are: Agrimer™ synthetic polymers and formulated products, Agrimax™ naturally derived polymers, and AgsolEx™ solvents.

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Agrimer™ synthetic polymers

Agrimer™ PVP

chemistry

Agrimer™ PVP products are linear, non-ionic polymers that are soluble in water and many organic solvents. They are pH stable, and have adhesive and cohesive properties. The unique ability to adsorb on a host of active ingredients makes Agrimer™ PVP homopolymers preferred co-dispersants in many formulations.

benefits

- compatible with a variety of active ingredients, resins and electrolytes
- enhances surface active properties of select surfactants
- forms hard glossy, transparent, oxygen permeable films
- forms films with water activity
- adhesive and cohesive properties
- crosslinkable

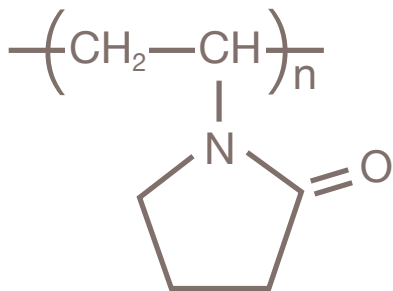
suggested applications

- complexing agent
- stabilizers / co-dispersants
- binders in dry / wet granulation and extrusion (dry compaction / fluidized-bed spray drying process)
- film-forming agents / binders in seed coatings, dips and pour-ons
- biological stabilization
- water binding / anti-transpiration properties
- solubility enhancers via co-precipitation or thermal extrusion
- dye-binding agent

properties

	chemical description	appearance	molecular weight	bulk density (g/cc)	specific gravity @ 25 °C	Tg (° C)	solubility in water	flashpoint ° F (° C)	freezing point (° C)	HLB	surface tension @25 °C mN/M ²	active, %	pH range
Agrimer™ 15	polyvinylpyrrolidone	off-white, amorphous powder	6,000-15,000	0.6-0.7	-	130	complete	-	-	-	-	>95%	3-7 (5% soln)
Agrimer™ 30	polyvinylpyrrolidone	off-white, amorphous powder	40,000-80,000	0.4-0.6	-	163	complete	-	-	-	-	>95%	3-7 (5% soln)
Agrimer™ 60L	polyvinylpyrrolidone	yellow aqueous solution	240,000-450,000	-	1.122	170	complete	-	-2.2	-	-	45-49%	3-7 (5% soln)
Agrimer™ 90	polyvinylpyrrolidone	off-white, amorphous powder	1,000,000-1,700,000	0.3-0.4	-	174	complete	-	-	-	-	>93%	3-7 (5% soln)
Agrimer™ 120	polyvinylpyrrolidone	off-white, amorphous powder	2,100,000-3,000,000	0.2-0.3	-	174	complete	-	-	-	-	>93%	4-8 (5% soln)

Agrimer™ PVP



formulary type

	emulsifiable concentrate	suspension concentrate	micro-emulsion concentrate	suspoemulsions	soluble liquid	soluble powder	wettable powder	water-dispersible granule	oil dispersion	capsule suspension
Agrimer™ 15	-	■	□	-	■	■	□	■	-	-
Agrimer™ 30	-	■	□	■	■	■	■	■	-	-
Agrimer™ 60L	-	■	-	■	■	■	-	■	-	■
Agrimer™ 90	-	■	-	-	■	■	-	■	-	-
Agrimer™ 120	-	■	-	-	■	■	-	■	-	-

application

	adjuvant	formulation solvent	synthesis medium / reactant	wetting agent	defoamer	dispersant /co-dispersant	emulsifier	film-former	rainfastness	seed coatings	controlled release	crystal inhibition	emulsion stabilization	granulating agent	disintegrant	microencapsulation	opacifier	protective colloid	preservative
Agrimer™ 15	-	-	-	-	-	■	-	■	-	■	-	-	-	■	-	□	-	■	-
Agrimer™ 30	-	-	-	-	-	■	-	■	-	■	-	-	-	■	-	□	-	■	-
Agrimer™ 60L	-	-	-	-	-	■	-	■	-	■	-	-	-	■	-	□	-	■	-
Agrimer™ 90	-	-	-	-	-	-	-	■	-	■	-	-	-	■	-	□	-	■	-
Agrimer™ 120	-	-	-	-	-	-	-	■	-	□	-	-	-	■	-	□	-	■	-

■ commercial application □ potential application - n/a

regulatory

	Inert ingredients – US EPA 40 CFR					
	B180:910	B180:920	B180:930	B180:950	B180:960	B180:1130
Agrimer™ 15	–	–	–	–	■	–
Agrimer™ 30	–	–	–	–	■	–
Agrimer™ 60L	–	–	–	–	■	–
Agrimer™ 90	–	–	–	–	■	–
Agrimer™ 120	–	–	–	–	■	–

	global chemical inventories								
	USA	EU	Australia	Canada	China	Japan	Korea	New Zealand	Phillipines
	TSCA	REACH	AICS	DSL	IECSC	ENCS	KECI/ECL	NZLoC	PICCS
Agrimer™ 15	■	■	■	■	■	■	■	■	■
Agrimer™ 30	■	■	■	■	■	■	■	■	■
Agrimer™ 60L	■	■	■	■	■	■	■	■	■
Agrimer™ 90	■	■	■	■	■	■	■	■	■
Agrimer™ 120	■	■	■	■	■	■	■	■	■

Agrimer™ AT and ATF

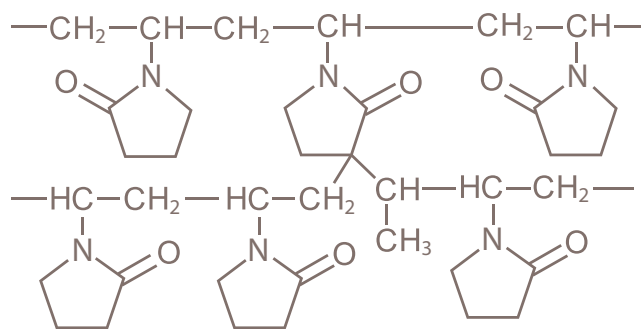
chemistry

Agrimer™ AT polymer is a cross-linked Agrimer™ PVP product that absorbs and swells with water / solvent, but is insoluble in aqueous and organic media. Agrimer™ AT polymer has high capillary hydration capacity that provides for high efficiency disintegration in tablets and granules. Agrimer™ ATF polymer is a finer particle size version of Agrimer™ AT polymer.

- insoluble in aqueous and organic media
- stable under acidic and alkaline conditions
- premium disintegrant
- excellent dry binder

benefits

- produce hard granules with low friability at low compression forces, reducing dusting and breakage during transport and storage
- effective as sequestrant for some toxicants
- complex with phenolic acids moieties
- maintain seed moisture and enhance germination in seed coatings



- quick disintegration upon addition to the spray tank or when contacted with water
- inherent binder properties and compatible with most co-formulants
- not tacky under humid conditions
- does not form gels

suggested applications

- disintegrants for wdg (water-dispersible granules) and tablets
- for wet granulation, dry compaction, fluid bed, spray drying and extrusion processes
- seed tapes
- dye binder in seed coatings

properties

	chemical description	appearance	molecular weight	bulk density (g/cc)	specific gravity @ 25 °C	Tg (° C)	solubility in water	flashpoint ° F (° C)	freezing point (° C)	HLB	surface tension @25 °C mN/M ²	active, %	pH range
Agrimer™ AT	polyvinylpyrrolidone	white to off-white, free-flowing powder	-	~0.3	-	185	insoluble	-	-	-	-	>94%	5-11 (1% slurry)
Agrimer™ ATF	polyvinylpyrrolidone	white to off-white, free-flowing powder	-	~0.36	-	185	insoluble	-	-	-	-	>94%	5-11 (1% slurry)

formulary type

	emulsifiable concentrate	suspension concentrate	micro-emulsion concentrate	suspoemulsions	soluble liquid	soluble powder	wettable powder	water-dispersible granule	oil dispersion	capsule suspension
Agrimer™ AT	-	-	-	-	-	-	■	■	-	-
Agrimer™ ATF	-	-	-	-	-	-	■	■	-	-

■ commercial application □ potential application - n/a

Agrimer™ AT and ATF

application

	adjuvant	formulation solvent	synthesis medium / reactant	wetting agent	defoamer	dispersant /co-dispersant	emulsifier	film-former	rainfastness	seed coatings	controlled release	crystal inhibition	emulsion stabilization	granulating agent	disintegrant	microencapsulation	opacifier	protective colloid	preservative
Agrimer™ AT	-	-	-	-	-	-	-	-	-	-	□	-	-	■	■	□	-	-	-
Agrimer™ ATF	-	-	-	-	-	-	-	-	-	■	□	-	-	■	■	□	-	-	-

regulatory

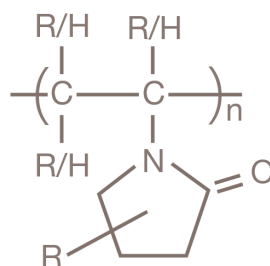
	Inert ingredients – US EPA 40 CFR					
	B180:910	B180:920	B180:930	B180:950	B180:960	B180:1130
Agrimer™ AT	-	-	-	-	■	-
Agrimer™ ATF	-	-	-	-	■	-

	global chemical inventories								
	USA	EU	Australia	Canada	China	Japan	Korea	New Zealand	Philippines
	TSCA	REACH	AICS	DSL	IECSC	ENCS	KECI/ECL	NZLoC	PICCS
Agrimer™ AT	■	■	■	■	■	■	■	-	■
Agrimer™ ATF	■	■	■	■	■	■	■	-	■

Agrimer™ AL

chemistry

The Agrimer™ AL family of alkylated vinyl pyrrolidone products are surface active non-ionic polymers. The backbone includes hydrophobic and hydrophilic moieties, which drive the polymer to either the water-air or water-oil interface, providing emulsion stabilization and rainfastness benefits.



benefits

- dispersion aid in oil dispersion formulations
- adhesive properties
- spreader-sticker and anti-flocculant in one polymer
- effective in reducing oil-water interfacial tension
- not sensitive to ph or salts
- reduce viscosity of flowables, permitting high active ingredient loading
- add viscosity and prevent active ingredient precipitation in suspension concentrates
- foliar adhesion
- wash-off resistant interfacial films for enhanced efficacy

- optimize biological efficacy
- antitranspirant properties

suggested applications

- oil dispersions
- emulsifier and anti-flocculant
- crystal inhibition
- multiple emulsions / stabilization of water-in-oil and oil-in-water emulsions
- anti-flocculants for flowables and concentrated suspensions for high active ingredient loading
- rainfastness: form waterproof films that minimize wash-off of crop protection chemicals from foliage

properties

	chemical description	appearance	molecular weight	bulk density (g/cc)	specific gravity @ 25 °C	Tg (° C)	solubility in water	flashpoint ° F (° C)	freezing point (° C)	HLB	surface tension @25 °C mN/M ²	active, %	pH range
Agrimer™ AL 10LC	polyvinylpyrrolidone/butylated copolymer (90/10)	off-white powder	12,000-22,000	~0.23 (0.26 tap)	-	155	complete	-	-	18-20	-	>95%	-
Agrimer™ AL 22	polyvinylpyrrolidone/hexadecene copolymer (20/80)	yellow viscous liquid	11,000 - 17,000	-	0.9	8.5 (melting point)	insoluble	-	-	3.5	-	>95%	-
Agrimer™ AL 25	polyvinylpyrrolidone/hexadecene copolymer (50/50) in ipa	pale yellow clear isopropanol solution	-	-	0.88	150	insoluble	62 (16.7)	-	9-11	-	45-55%	-
Agrimer™ AL 30	polyvinylpyrrolidone/eicosene copolymer, (30/70)	off-white / yellow waxy mass	14,000-20,000	-	0.95	35-40 (melting point)	insoluble	-	-	4-6	-	>96%	-

■ commercial application □ potential application - n/a

Agrimer™ AL

formulary type

	emulsifiable concentrate	suspension concentrate	micro-emulsion concentrate	suspoemulsions	soluble liquid	soluble powder	wettable powder	water-dispersible granule	oil dispersion	capsule suspension
Agrimer™ AL 10LC	-	■	-	-	-	■	-	■	-	■
Agrimer™ AL 22	-	■	-	-	-	-	-	□	■	■
Agrimer™ AL 25	-	-	-	-	-	-	-	-	□	-
Agrimer™ AL 30	-	-	-	-	-	-	■	□	□	-

application

	adjuvant	formulation solvent	synthesis medium / reactant	wetting agent	defoamer	dispersant / co-dispersant	emulsifier	film-former	rainfastness	seed coatings	controlled release	crystal inhibition	emulsion stabilization	granulating agent	disintegrant	microencapsulation	opacifier	protective colloid	preservative
Agrimer™ AL 10LC	-	-	-	-	-	■	-	■	-	■	-	■	■	■	-	■	-	-	-
Agrimer™ AL 22	-	-	-	-	-	■	-	■	■	-	-	■	■	□	-	■	-	-	-
Agrimer™ AL 25	-	-	-	-	-	■	-	■	■	-	-	■	■	□	-	□	-	-	-
Agrimer™ AL 30	-	-	-	-	-	■	-	■	■	-	-	■	■	□	-	□	-	-	-

Agrimer™ AL

regulatory

	Inert ingredients – US EPA 40 CFR					
	B180:910	B180:920	B180:930	B180:950	B180:960	B180:1130
Agrimer™ AL 10LC	–	–	–	–	■	–
Agrimer™ AL 22	–	–	–	–	■	–
Agrimer™ AL 25	–	–	–	–	■	–
Agrimer™ AL 30	–	–	–	–	■	–

	global chemical inventories								
	USA	EU	Australia	Canada	China	Japan	Korea	New Zealand	Philippines
	TSCA	REACH	AICS	DSL	IECSC	ENCS	KECI/ECL	NZLoC	PICCS
Agrimer™ AL 10LC	■	■	■	■	■	–	–	–	■
Agrimer™ AL 22	■	■	■	■	■	–	■	–	■
Agrimer™ AL 25	■	■	■	■	■	–	■	–	■
Agrimer™ AL 30	■	■	■	■	■	–	■	–	■

■ commercial application □ potential application – n/a

Agrimer™ VA

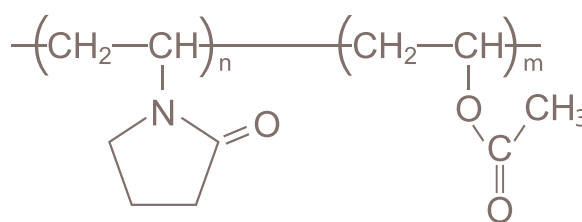
chemistry

Agrimer™ VA series include linear random copolymers that form hard, glossy, thermoplastic films. The films are oxygen permeable with good water holding properties, appropriate for seed coatings and leaf adhesion. Agrimer™ VA copolymers have good adhesive, cohesive, and binding properties for several substrates and a host of active ingredients. Can be used as a co-dispersant in enhancing solubility/dispersibility of complex active ingredients for improved bio-availability.

benefits

- forms films with a wide range of water resistance properties
- dusting reduction in coatings
- uniform films that enhance survival rate of rhizobia
- adhesive and cohesive properties

properties



- can enhance hydrophobic active ingredient solubility / dispersibility
- effective at reducing surface tension of water
- effective at reducing oil/water interfacial tension

suggested applications

- seed coatings
- binders for water dispersible granules
- film forming agent
- co-stabilizers in water-based flowable formulations
- controlled release via co-precipitation with polybasic acids
- binders in thermal extrusion

	chemical description	appearance	molecular weight	bulk density (g/cc)	specific gravity @ 25 °C	Tg (°C)	solubility in water	flashpoint °F (°C)	freezing point (°C)	HLB	surface tension @25 °C mN/M ²	active, %	pH range
Agrimer™ VA 3E	poly (vinyl pyrrolidone/ vinyl acetate), 30/70 in ethanol	clear viscous liquid	28,800 (PEO Stds)	—	0.945-0.965	69	insoluble	—	—	—	—	48-52%	—
Agrimer™ VA 5E	poly (vinyl pyrrolidone/ vinyl acetate), 50/50 in ethanol	clear viscous liquid	36,700 (PEO Stds)	—	0.945-0.965	96	soluble	—	—	—	—	48-52%	—
Agrimer™ VA 6E	poly (vinyl pyrrolidone/ vinyl acetate), 60/40 in ethanol	clear viscous liquid	38,200 (PEO Stds)	—	0.945-0.965	106	soluble	—	—	—	—	48-52%	—
Agrimer™ VA 7E	poly (vinyl pyrrolidone/ vinyl acetate), 70/30 in ethanol	clear viscous liquid	56,700 (PEO Stds)	—	0.945-0.965	117	soluble	—	—	—	—	48-52%	—
Agrimer™ VA 3I	poly (vinyl pyrrolidone/ vinyl acetate), 30/70 in IPA	clear viscous liquid, light yellow	12,700 (PEO Stds)	—	0.945-0.965	71	insoluble	—	—	—	—	48-52%	—
Agrimer™ VA 5I	poly (vinyl pyrrolidone/ vinyl acetate), 50/50 in IPA	clear viscous liquid, light yellow	19,500 (PEO Stds)	—	0.945-0.965	89	soluble	—	—	—	—	48-52%	—
Agrimer™ VA 7I	poly (vinyl pyrrolidone/ vinyl acetate), 70/30 in IPA	clear viscous liquid, light yellow	22,300 (PEO Stds)	—	0.945-0.965	108	soluble	—	—	—	—	48-52%	—
Agrimer™ VA 7W	poly (vinyl pyrrolidone/ vinyl acetate), 70/30 in water	clear viscous liquid	27,300 (PEO Stds)	—	1.11	110	complete	—	—	—	—	48-52%	—
Agrimer™ VA 6	poly (vinyl pyrrolidone/ vinyl acetate), 60/40, solid	white powder	51,000 (PEO Stds)	—	1.081	110	complete	—	—	—	—	>95%	—
Agrimer™ VA 6W	poly (vinyl pyrrolidone/ vinyl acetate), 60/40, in water	clear viscous liquid	15,000 (PEO Stds)	—	1.113	99	complete	—	—	—	—	48-52%	—

Agrimer™ VA

formulary type

	emulifiable concentrate	suspension concentrate	micro-emulsion concentrate	suspoemulsions	soluble liquid	soluble powder	wettable powder	water-dispersible granule	oil dispersion	capsule suspension
Agrimer™ VA 3E	-	-	-	-	-	-	-	□	-	-
Agrimer™ VA 5E	-	-	-	-	-	-	-	□	-	-
Agrimer™ VA 6E	-	-	-	-	-	-	-	□	-	-
Agrimer™ VA 7E	-	-	-	-	-	-	-	□	-	-
Agrimer™ VA 3I	-	-	-	-	-	-	-	□	-	-
Agrimer™ VA 5I	-	-	-	-	-	-	-	□	-	-
Agrimer™ VA 7I	-	-	-	-	-	-	-	■	-	-
Agrimer™ VA 7W	-	■	-	-	■	-	■	■	-	-
Agrimer™ VA 6	-	■	-	-	■	■	■	■	-	-
Agrimer™ VA 6W	-	■	-	-	■	-	■	■	-	-

application

	adjuvant	formulation solvent	synthesis medium / reactant	wetting agent	defoamer	dispersant /co-dispersant	emulsifier	film-former	rainfastness	seed coatings	controlled release	crystal inhibition	emulsion stabilization	granulating agent	disintegrant	microencapsulation	opacifier	protective colloid	preservative
Agrimer™ VA 3E	-	-	-	-	-	□	-	■	-	□	□	-	□	-	-	-	-	□	-
Agrimer™ VA 5E	-	-	-	-	-	□	-	■	-	□	□	-	□	-	-	-	-	□	-
Agrimer™ VA 6E	-	-	-	-	-	□	-	■	-	□	□	-	□	-	-	-	-	□	-
Agrimer™ VA 7E	-	-	-	-	-	□	-	■	-	□	□	-	□	-	-	-	-	□	-
Agrimer™ VA 3I	-	-	-	-	-	□	-	■	-	□	□	-	□	-	-	-	-	□	-
Agrimer™ VA 5I	-	-	-	-	-	□	-	■	-	□	□	-	□	-	-	-	-	□	-
Agrimer™ VA 7I	-	-	-	-	-	□	-	■	-	□	□	-	□	-	-	-	-	□	-
Agrimer™ VA 7W	-	-	-	-	-	■	-	■	-	□	□	-	■	■	-	-	-	■	-
Agrimer™ VA 6	-	-	-	-	-	■	-	■	■	■	■	-	■	■	-	■	-	■	-
Agrimer™ VA 6W	-	-	-	-	-	■	-	■	■	■	■	-	■	■	-	-	-	■	-

Agrimer™ VA

regulatory

	Inert ingredients – US EPA 40 CFR					
	B180:910	B180:920	B180:930	B180:950	B180:960	B180:1130
Agrimer™ VA 3E	–	–	–	–	■	–
Agrimer™ VA 5E	–	–	–	–	■	–
Agrimer™ VA 6E	–	–	–	–	■	–
Agrimer™ VA 7E	–	–	–	–	■	–
Agrimer™ VA 3I	–	–	–	–	■	–
Agrimer™ VA 5I	–	–	–	–	■	–
Agrimer™ VA 7I	–	–	–	–	■	–
Agrimer™ VA 7W	–	–	–	–	■	–
Agrimer™ VA 6	–	–	–	–	■	–
Agrimer™ VA 6W	–	–	–	–	■	–

	global chemical inventories								
	USA	EU	Australia	Canada	China	Japan	Korea	New Zealand	Philippines
	TSCA	REACH	AICS	DSL	IECSC	ENCS	KECI/ECL	NZLoC	PICCS
Agrimer™ VA 3E	■	■	■	■	■	■	■	–	■
Agrimer™ VA 5E	■	■	■	■	■	■	■	–	■
Agrimer™ VA 6E	■	■	■	■	■	■	■	–	■
Agrimer™ VA 7E	■	■	■	■	■	■	■	–	■
Agrimer™ VA 3I	■	■	■	■	■	■	■	–	■
Agrimer™ VA 5I	■	■	■	■	■	■	■	–	■
Agrimer™ VA 7I	■	■	■	■	■	■	■	–	■
Agrimer™ VA 7W	■	■	■	■	■	■	■	–	■
Agrimer™ VA 6	■	■	■	■	■	■	■	–	■
Agrimer™ VA 6W	□	■	■	■	■	■	■	–	■

■ commercial application □ potential application – n/a

Agrimer™ VEMA

chemistry

Agrimer™ VEMA polymers are based on linear alternating polymers (methyl vinyl ether/maleic anhydride), which can be further modified to adjust the polymer properties.

benefits

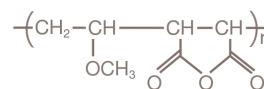
- surface active polymers (nonionic and anionic)
- forms derivatives that can impart controlled release properties with certain actives
- polyelectrolytic properties
- adhesive and cohesive properties
- forms transparent films

suggested applications

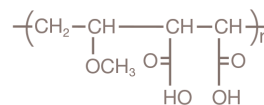
- polymeric co-dispersants
- enhance active ingredient solubility/dispersibility via co-precipitation
- binders in dry, wet granulation, hot melt extrusion

- crystal inhibition
- convert liquid actives to solids
- spreader-stickers with film forming potential
- seed and granule coatings
- microencapsulation
- soil conditioning

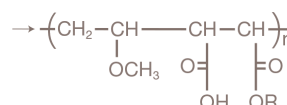
an grades



h grades



es grades (half ester)



R = EtOH, BuOH or IPA

properties

	chemical description	appearance	molecular weight	bulk density (g/cc)	specific gravity @ 25 °C	Tg (° C)	solubility in water	flashpoint ° F (° C)	freezing point (° C)	HLB	surface tension @ 25 °C mN/M ²	active, %	pH range
Agrimer™ VEMA AN-216	poly (methyl vinyl ether/maleic anhydride)	white powder	216,000	0.34	1.018	152	slowly hydrolyzes to soluble acid	–	–	–	–	>98%	–
Agrimer™ VEMA AN-990	poly (methyl vinyl ether/maleic anhydride)	white powder	990,000	0.33	1.016	151	slowly hydrolyzes to soluble acid	–	–	–	–	>98%	–
Agrimer™ VEMA AN-1980	poly (methyl vinyl ether/maleic anhydride)	white powder	1,980,000	0.32	1.017	154	slowly hydrolyzes to soluble acid	–	–	–	–	>98%	–
Agrimer™ VEMA H-2200	poly (methyl vinyl ether/maleic acid)	white powder	1,980,000	–	–	–	soluble	–	–	–	46.4 @1%	>94%	1.5-2.5% (5%)
Agrimer™ VEMA H-2200L	poly (methyl vinyl ether/maleic acid) in water 13%	viscous liquid	1,980,000	–	1.000	–	soluble	–	–	–	46.4 @1%	12-14%	1.5-2.5% (as is)
Agrimer™ VEMA H-815MS	ca/na salt of poly(methyl vinyl ether/maleic acid)	white powder	1,000,000	0.60-0.75	–	–	slowly soluble	–	–	–	71.7 @1%	85-94%	6-7% (at 1%)
Agrimer™ VEMA ES-22	ethyl ester of poly(methyl vinyl ether/ma) in ethanol	clear viscous liquid	100-150,000	–	0.983	92	insoluble	–	–	–	–	48-52%	–
Agrimer™ VEMA ES-22M	ethyl ester of poly(methyl vinyl ether/ma) in ethanol, lower mw	clear viscous liquid	60-100,000	–	0.983	101	insoluble	–	–	–	–	48-52%	–
Agrimer™ VEMA ES-33	isopropyl ester of poly(methyl vinyl ether/ma) in ipa	clear viscous liquid	44.5-50,000	–	0.957	94	insoluble	–	–	–	–	48-52%	–
Agrimer™ VEMA ES-42	butyl ester of poly(methyl vinyl ether/ma) in ethanol	clear viscous liquid	125-150,000	–	0.977	70	insoluble	–	–	–	–	48-52%	–
Agrimer™ VEMA ES-43	butyl ester of poly(methyl vinyl ether/ma) in ipa	clear viscous liquid	125-150,000	–	0.962	70	insoluble	–	–	–	–	48-52%	–

■ commercial application □ potential application – n/a

Agrimer™ VEMA

formulary type

	emulsifiable concentrate	suspension concentrate	micro-emulsion concentrate	suspoemulsions	soluble liquid	soluble powder	wettable powder	water-dispersible granule	oil dispersion	capsule suspension
Agrimer™ VEMA AN-216	–	–	–	–	–	–	–	–	–	□
Agrimer™ VEMA AN-990	–	–	–	–	–	–	–	–	–	□
Agrimer™ VEMA AN-1980	–	–	–	–	–	–	–	–	–	□
Agrimer™ VEMA H-2200	–	■	–	■	■	■	■	■	–	–
Agrimer™ VEMA H-2200L	–	■	–	■	■	■	■	■	–	–
Agrimer™ VEMA H-815MS	–	–	–	–	–	□	–	–	–	□
Agrimer™ VEMA ES-22	–	–	–	–	–	–	–	–	–	–
Agrimer™ VEMA ES-22M	–	–	–	–	–	–	–	–	–	–
Agrimer™ VEMA ES-33	–	–	–	–	–	–	–	–	–	–
Agrimer™ VEMA ES-42	–	–	–	–	–	–	–	–	–	–
Agrimer™ VEMA ES-43	–	–	–	–	–	–	–	–	–	–

application

	adjuvant	formulation solvent	synthesis medium / reactant	wetting agent	defoamer	dispersant / co-dispersant	emulsifier	film-former	rainfastness	seed coatings	controlled release	crystal inhibition	emulsion stabilization	granulating agent	disintegrant	microencapsulation	opacifier	protective colloid	preservative
Agrimer™ VEMA AN-216	–	–	–	–	–	■	–	–	–	□	■	■	–	–	–	■	–	–	–
Agrimer™ VEMA AN-990	–	–	–	–	–	■	–	–	–	□	■	■	–	–	–	■	–	–	–
Agrimer™ VEMA AN-1980	–	–	–	–	–	■	–	–	–	□	■	■	–	–	–	–	–	–	–
Agrimer™ VEMA H-2200	–	–	–	–	–	■	–	■	■	□	■	–	–	–	–	–	–	□	–
Agrimer™ VEMA H-2200L	–	–	–	–	–	■	–	■	■	□	■	–	–	–	–	–	–	□	–
Agrimer™ VEMA H-815MS	–	–	–	–	–	□	–	□	–	□	□	□	–	■	–	■	–	■	–
Agrimer™ VEMA ES-22	–	–	–	–	–	□	–	■	–	□	–	□	–	–	–	–	–	□	–
Agrimer™ VEMA ES-22M	–	–	–	–	–	□	–	■	–	□	–	□	–	–	–	–	–	□	–
Agrimer™ VEMA ES-33	–	–	–	–	–	□	–	■	–	□	–	□	–	–	–	–	–	□	–
Agrimer™ VEMA ES-42	–	–	–	–	–	□	–	■	–	□	–	□	–	–	–	–	–	□	–
Agrimer™ VEMA ES-43	–	–	–	–	–	□	–	■	–	□	–	□	–	–	–	–	–	□	–

Agrimer™ VEMA

regulatory

	Inert ingredients – US EPA 40 CFR					
	B180:910	B180:920	B180:930	B180:950	B180:960	B180:1130
Agrimer™ VEMA AN-216	–	–	–	–	■	–
Agrimer™ VEMA AN-990	–	–	–	–	–	–
Agrimer™ VEMA AN-1980	–	–	–	–	■	–
Agrimer™ VEMA H-2200	–	–	–	–	■	–
Agrimer™ VEMA H-2200L	–	–	–	–	■	–
Agrimer™ VEMA H-815MS	–	–	–	–	–	–
Agrimer™ VEMA ES-22	–	–	–	–	–	–
Agrimer™ VEMA ES-22M	–	–	–	–	–	–
Agrimer™ VEMA ES-33	–	–	–	■	–	–
Agrimer™ VEMA ES-42	■	–	–	–	–	–
Agrimer™ VEMA ES-43	■	–	–	–	–	–

	global chemical inventories								
	USA	EU	Australia	Canada	China	Japan	Korea	New Zealand	Philippines
	TSCA	REACH	AICS	DSL	IECSC	ENCS	KECI/ECL	NZLoC	PICCS
Agrimer™ VEMA AN-216	–	–	–	–	–	–	–	–	–
Agrimer™ VEMA AN-990	–	■	■	■	■	■	■	–	■
Agrimer™ VEMA AN-1980	■	■	■	■	■	■	■	–	■
Agrimer™ VEMA H-2200	–	■	–	–	–	–	–	–	–
Agrimer™ VEMA H-2200L	–	■	–	–	–	–	–	–	–
Agrimer™ VEMA H-815MS	–	–	–	–	–	–	–	–	–
Agrimer™ VEMA ES-22	–	–	–	–	–	–	–	–	–
Agrimer™ VEMA ES-22M	–	–	–	–	–	–	–	–	–
Agrimer™ VEMA ES-33	–	■	–	■	–	–	■	–	■
Agrimer™ VEMA ES-42	■	–	■	■	■	■	■	–	■
Agrimer™ VEMA ES-43	■	–	–	■	–	–	■	–	■

■ commercial application □ potential application – n/a

Agrimer™ ST Agrimer™ DA

chemistry

Agrimer™ ST Vinylpyrrolidone/styrene copolymer emulsion. Fluid, milky-white emulsion, with solids content of approximately 40%.

Agrimer™ DA VP/dimethylaminoethyl methacrylate copolymers. A series of copolymers covering a wide range of VP / DMAEMA molar ratios. Available as water and alcohol solutions.

benefits

Agrimer™ ST

- forms strong, light stable films with high water resistance
- sub-micron particle size (>5 micron)
- pH: 2-5
- stable, moderately viscous dispersion
- high acid and salt tolerance

Agrimer™ DA

- compatible with most anionic, nonionic and cationic surfactants
- pseudo-cationic, substantiative to negatively charged surfaces

suggested applications

Agrimer™ ST

- liquid formulations: an excellent dispersant and opacifier, protective colloid, thickener and dispersion stabilizer for flowables/concentrated suspensions and water-based emulsions
- soil conditioner: reduce wind erosion by aggregating soil colloids

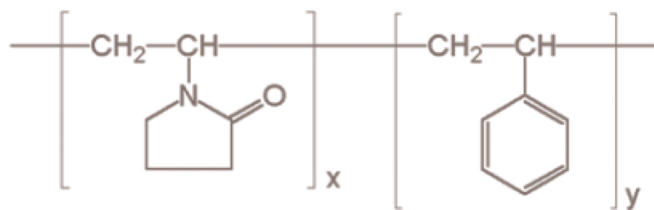
Agrimer™ DA

- excellent film forming polymers
- spreader/stickers, especially to negatively charged surfaces like soil and leaves
- useful for enzyme stabilization

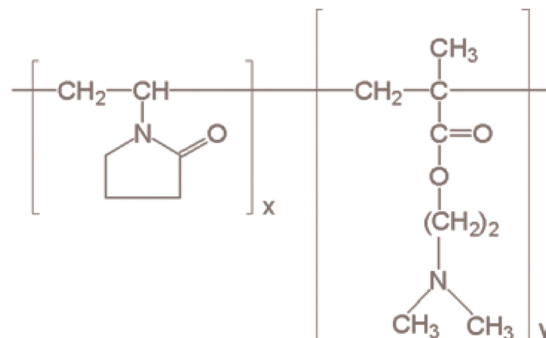
properties

	chemical description	appearance	molecular weight	bulk density (g/cc)	specific gravity @ 25 °C	Tg (° C)	solubility in water	flashpoint ° F (° C)	freezing point (° C)	HLB	surface tension @25 °C mN/M ²	active, %	pH range
Agrimer™ ST	poly (vinylpyrrolidone / styrene)	fluid, milky-white aqueous emulsion	—	—	1.04	104	complete	—	—	—	—	—	—
Agrimer™ DA 120	poly (vp/ dimethylaminoethyl methacrylate) in ethanol	hazy, straw viscous liquid	80,000-150,000	—	—	100	soluble	—	—	—	—	85-52%	6-7.5 (25% aqueous soln w/w)
Agrimer™ DA 102W	citric acid neutralized poly (vp/dimethylaminoethyl methacrylate) in water	aqueous viscous liquid	700,000-1,200,000	—	1.047	172	soluble	—	—	—	—	19-21%	6-8 (as is)
Agrimer™ DA 1020W	lactic acid neutralized poly (vp/dimethylaminoethyl methacrylate) in water	hazy, aqueous viscous liquid	800,000-1,100,000	—	—	104	soluble	—	—	—	—	19-21%	5-7 (as is)

Agrimer™ ST Agrimer™ DA



Agrimer™ ST



Agrimer™ DA

formulary type

	emulsifiable concentrate	suspension concentrate	micro-emulsion concentrate	suspoemulsions	soluble liquid	soluble powder	wettable powder	water-dispersible granule	oil dispersion	capsule suspension
Agrimer™ ST	-	■	-	-	■	-	■	-	-	-
Agrimer™ DA 120	-	-	-	-	-	-	-	-	-	-
Agrimer™ DA 102W	-	□	-	□	□	-	■	■	-	-
Agrimer™ DA 1020W	-	□	-	□	□	-	■	■	-	-

application

	adjuvant	formulation solvent	synthesis medium / reactant	wetting agent	defoamer	dispersant / co-dispersant	emulsifier	film-former	rainfastness	seed coatings	controlled release	crystal inhibition	emulsion stabilization	granulating agent	disintegrant	microencapsulation	opacifier	protective colloid	preservative
Agrimer™ ST	-	-	-	-	-	■	-	■	-	□	-	-	-	-	-	-	■	-	-
Agrimer™ DA 120	-	-	-	-	-	-	-	■	-	□	■	■	-	-	-	-	-	□	-
Agrimer™ DA 102W	■	-	-	-	-	-	-	■	-	□	■	■	-	-	-	-	-	□	-
Agrimer™ DA 1020W	■	-	-	-	-	-	-	■	-	□	■	■	-	-	-	-	-	□	-

■ commercial application □ potential application - n/a

Agrimer™ ST Agrimer™ DA

regulatory

	inert ingredients – US EPA 40 CFR					
	B180:910	B180:920	B180:930	B180:950	B180:960	B180:1130
Agrimer™ ST	–	–	–	–	■	–
Agrimer™ DA 120	■	–	–	–	–	–
Agrimer™ DA 102W	–	–	–	–	■	–
Agrimer™ DA 1020W	–	–	–	–	■	–

	global chemical inventories								
	USA	EU	Australia	Canada	China	Japan	Korea	New Zealand	Philippines
	TSCA	REACH	AICS	DSL	IECSC	ENCS	KECI/ECL	NZLoC	PICCS
Agrimer™ ST	■	■	■	■	■	■	■	–	■
Agrimer™ DA 120	■	■	■	■	■	–	–	–	■
Agrimer™ DA 102W	■	■	■	■	■	–	–	–	■
Agrimer™ DA 1020W	■	■	■	■	■	–	–	–	■

Agrimer™ DF

chemistry

Ashland produces a broad range of Agrimer™ DF defoamers, based on both silicones, organosilicones, surface active agent, mineral oil and vegetable oil.

Provided here is only a limited sampling; please contact your Ashland sales representative for more details.

properties

	chemical description	appearance	molecular weight	bulk density (g/cc)	specific gravity @ 25 °C	Tg (° C)	solubility in water	flashpoint ° F (° C)	freezing point (° C)	HLB	surface tension @25 °C mN/M ²	active, %	pH range
Agrimer™ DF 15	hydrophobic silica in vegetable oil	viscous liquid	600-2,000	-	0.983	-	emulsifiable	540 (282)	-	-	-	-	-
Agrimer™ DF 30	silica-mineral oil with compatibilizer	white to off-white liquid	400	-	0.91	445.50 °F / 229.72 °C @ 1,013.33 hPa	emulsifiable in water	> 279 (> 137)	-	-	-	-	-
Agrimer™ DF 60	silicone/silica with compatibilizer	off-white, opaque liquid	-	-	1.02	95 °F / 35 °C @ 1,013.33 hPa	readily dispersible in water	> 299 (148)	-	-	-	-	-

formulary type

	emulsifiable concentrate	suspension concentrate	micro-emulsion concentrate	suspoemulsions	soluble liquid	soluble powder	wettable powder	water-dispersible granule	oil dispersion	capsule suspension
Agrimer™ DF 15	-	■	-	-	-	-	□	-	-	-
Agrimer™ DF 30	-	■	-	-	-	-	□	-	-	-
Agrimer™ DF 60	■	■	-	-	-	-	□	-	-	-

application

	adjuvant	formulation solvent	synthesis medium / reactant	wetting agent	defoamer	dispersant / co-dispersant	emulsifier	film-former	rainfastness	seed coatings	controlled release	crystal inhibition	emulsion stabilization	granulating agent	disintegrant	microencapsulation	opacifier	protective colloid	preservative
Agrimer™ DF 15	-	-	-	-	■	-	-	-	-	□	-	-	-	□	-	-	-	-	-
Agrimer™ DF 30	-	-	-	-	■	-	-	-	-	□	-	-	-	□	-	-	-	-	-
Agrimer™ DF 60	-	-	-	-	■	-	-	-	-	□	-	-	-	□	-	-	-	-	-

Agrimer™ DF

regulatory

	inert ingredients – US EPA 40 CFR					
	B180:910	B180:920	B180:930	B180:950	B180:960	B180:1130
Agrimer™ DF 15	■	–	–	–	–	–
Agrimer™ DF 30	■	–	–	–	–	–
Agrimer™ DF 60	■	–	–	–	–	–

	global chemical inventories								
	USA	EU	Australia	Canada	China	Japan	Korea	New Zealand	Phillipines
	TSCA	REACH	AICS	DSL	IECSC	ENCS	KECI/ECL	NZLoC	PICCS
Agrimer™ DF 15	■	–	■	■	■	■	■	–	■
Agrimer™ DF 30	■	–	■	■	■	■	■	–	■
Agrimer™ DF 60	■	–	■	■	■	■	■	–	■

■ commercial application □ potential application – n/a

Easy-Sperse™ P-20 Microflex-1™ EasyWet™ 20 Agrimax™ 3H ULN

chemistry

Easy-Sperse™ P-20 is a proprietary polymer blend that produces excellent suspendability at high dilution in SC and WDG formulations. More forgiving to AI impurities.

Microflex-1™ is an effective delivery system for use with a variety of agricultural insecticides, fungicides and animal health applications.

Premium EasyWet™ 20 wetting agent allows wetting both high and low energy surfaces at very low concentrations.

Agrimax™ 3H ULN is an oil-based microemulsion forming matrix that enhances rainfastness and provides for excellent wetting of leaf surfaces.

benefits

Easy-Sperse™ P-20

- improved suspension of diluted formulations
- superior stability of hydrophobic actives
- added benefit of rainfast properties

Microflex-1™

- excellent solvency and emulsification
- high actives loading
- long-term stability

EasyWet™ 20

- excellent wetting and spreading
- ultra low use level
- used as tank mix adjuvant or as coformulant

Agrimax™ 3H ULN

- rainfastness, spread, stick and penetrate with a single product
- significantly lower foliage disease

suggested applications

Easy-Sperse™ P-20

Effective dispersant binder / rain-fast agent. Polymeric dispersant that improves suspension of SC and WDG formulations. Very effective on high impurity actives.

Microflex-1™

- municipal insecticide
- municipal medicated shampoo for animal health

EasyWet™ 20

- as tank mix adjuvant in herbicides for difficult leaves, weeds and grasses
- in liquid foliar fertilizer formulations to improve nutrient uptake rate
- additive in animal pour-ons to improve wetting and penetration

Agrimax™ 3H ULN

- decrease in foliage blight (blight control)

properties

	chemical description	appearance	molecular weight	bulk density (g/cc)	specific gravity @ 25 °C	Tg (° C)	solubility in water	flashpoint ° F (° C)	freezing point (° C)	HLB	surface tension @25 °C mN/M ²	active, %	pH range
Easy-Sperse™ P-20	proprietary	white powder	—	—	—	—	complete	—	—	—	—	—	—
Microflex-1™	proprietary	clear yellow liquid	mixture	—	1.00	—	soluble	38	5	8.3	—	—	—
EasyWet™ 20	proprietary blend containing n-octyl-2-pyrrolidone	clear liquid	—	—	0.93	—	complete	>288	41	—	—	—	—
Agrimax™ 3H ULN	proprietary	clear yellow liquid	mixture	—	0.92	> 100 °C	insoluble	64 °C	< -35.6 °C	—	—	—	—

Easy-Sperse™ P-20 Microflex-1™ EasyWet™ 20 Agrimax™ 3H ULN

formulary type

	emulsifiable concentrate	suspension concentrate	micro-emulsion concentrate	suspoemulsions	soluble liquid	soluble powder	wettable powder	water-dispersible granule	oil dispersion	capsule suspension
Easy-Sperse™ P-20	–	■	–	■	■	■	■	■	–	■
Microflex-1™	–	–	■	–	–	–	–	–	–	–
EasyWet™ 20	■	■	■	■	■	–	■	■	■	–
Agrimax™ 3H ULN	■	■	–	■	–	–	■	■	■	–

application

	adjuvant	formulation solvent	synthesis medium / reactant	wetting agent	defoamer	dispersant / co-dispersant	emulsifier	film-former	rainfastness	seed coatings	controlled release	crystal inhibition	emulsion stabilization	granulating agent	disintegrant	microencapsulation	opacifier	protective colloid	preservative
Easy-Sperse™ P-20	–	–	–	–	–	■	–	■	■	■	–	–	–	■	–	–	–	■	–
Microflex-1™	–	■	–	■	–	–	■	–	–	■	–	–	■	–	–	–	–	–	–
EasyWet™ 20	■	–	–	■	–	–	■	–	–	–	–	■	–	–	–	–	–	–	–
Agrimax™ 3H ULN	■	–	–	–	–	–	–	–	■	–	–	■	–	–	–	–	–	–	–

■ commercial application □ potential application – n/a

Easy-Sperse™ P-20 Microflex-1™ EasyWet™ 20 Agrimax™ 3H ULN

regulatory

	inert ingredients – US EPA 40 CFR					
	B180:910	B180:920	B180:930	B180:950	B180:960	B180:1130
Easy-Sperse™ P-20	–	–	–	–	■	–
Microflex-1™	–	–	–	–	–	■
EasyWet™ 20	–	–	–	–	–	■**
Agrimax™ 3H ULN	–	–	–	–	–	■***

* There are quantity or other limitations associated with this product

** Compliant – manufactured in the U.S., as long as shipped from Ashland facility to EU Ashland warehouse and sold by EU entity

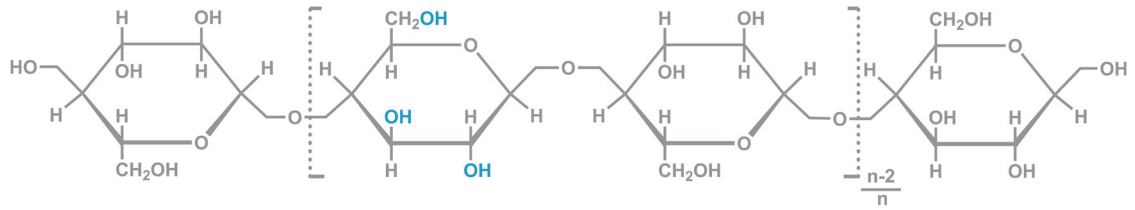
	global chemical inventories									
	USA	EU	Australia	Canada	China	Japan	Korea	New Zealand	Philippines	Switzerland
	TSCA	REACH	AICS	DSL	IECSC	ENCS	KECI/ECL	NZLoC	PICCS	CHEMINV CH
Easy-Sperse™ P-20	■	■	–	■	–	■	■	–	–	–
Microflex-1™	■	–	■	■	■	–	■	–	■	–
EasyWet™ 20	–	■	■	■	■	–	■	–	■	–
Agrimax™ 3H ULN	■	■	■	■	■	–	■	–	■	–

■ commercial application □ potential application – n/a

Agrimax™ C

chemistry

The starting material for the manufacture of cellulose ethers is highly purified cellulose.



Cellulose is a polysaccharide composed of anhydroglucose units, which are linked through beta-glycosidic bonds. The number "n" of anhydroglucose units in the polymer chain is defined as the degree of polymerisation (DP).

Each anhydroglucose ring carries three free OH-groups at positions 2, 3 and 6. Ethers of cellulose are formed by substituting one or more of the three hydroxyl groups. The distribution of the substituents introduced onto the polymer chain is largely determined by the relative reactivity of these three OH-groups.

The number of substituted hydroxyl groups per anhydroglucose unit is expressed as DS or average degree of substitution. The DS can vary between 0 and 3.

In the case of alkoxylation the molar ratio of alkoxy groups in the side chains to cellulose is specified and expressed as the average molecular substitution (MS).

Instead of DS and MS, the weight percent of the substituents in the cellulose ether is often quoted. The use of one etherification agent in the substitution process results in a simple cellulose ether, whereas using different kinds of agents leads to mixed ethers. Industrial cellulose ethers are alkyl, alkylhydroxyalkyl, hydroxyalkyl, and carboxyalkyl ethers.

benefits and applications

Cellulose ethers have a great number of valuable properties, which find application in numerous crop protection and seed coating application areas. The following is a list of these properties.

thickening action

The viscosity of various aqueous, aqueous-organic, and organic solutions, slurries, and dispersions can be adjusted to the desired level by addition of small amounts of cellulose ethers.

rheology

The rheology and consistency of solutions are controlled either thru the molecular weight of cellulose ethers or its concentration.

film formation

Films with high transparency and tensile strength can be prepared from cellulose ethers solutions. These films are soluble in water and resistant to most organic solvents, fats and oils.

suspending action

Depending on the type of substituent, the degree of substitution and the solution viscosity cellulose ethers is a suitable suspending agent.

water retention

High viscosity types of cellulose ethers exhibit excellent water retention. This property is beneficially used for preventing syneresis. The water retention capacity is proportional to the concentration and solution viscosity of the cellulose ether grade chosen.

binding ability

Due to their polymeric structure Agrimax™ C Series cellulose ethers have good binding ability.

Agrimax™ cellulose ethers for regulated applications

chemical term	abbreviation	Agrimax™ trademark
methylcellulose	MC	Agrimax™ C300
methylhydroxypropylcellulose	MHPC	Agrimax™ C400
hydroxyethylcellulose	HEC	Agrimax™ C100
hydroxypropylcellulose	HPC	Agrimax™ C200
sodium carboxymethylcellulose	CMC	Agrimax™ C600

Agrimax™ C

controlled release properties

Like other Agrimax™ C cellulose ethers when brought in contact with aqueous systems, cellulose ethers form gels that dissolve slowly. With this attribute, cellulose ethers are used as a sustained release agent in matrix tablets where the gel layer forms a diffusion barrier for active ingredients to permeate.

surface activity

Depending on the type of substituent and degree of substitution, cellulose ethers are suitable as suspension and emulsifying agents and as protective colloids due to their surface activity.

stabilizing action

By adding small amounts of cellulose ethers, the stability of emulsion systems is improved.

properties

	chemical description	appearance	molecular weight	bulk density (g/cc)	specific gravity @ 25 °C	Tg (° C)	solubility in water	flashpoint ° F (° C)	freezing point (° C)	HLB	surface tension @25 °C mN/M ²	active, %	pH range
Agrimax™ - C 100	hydroxyethyl cellulose	white to tan powder	~1,300,000	-	0.6 g/ml (bulk density)	-	complete	-	-	-	-	-	-
Agrimax™ - C 200	hydroxypropyl cellulose	white to off-white granular solid	80,000	-	0.5 g/ml (bulk density)	100-150 (softening)	complete	-	-	-	43.6 @ 0.1 wt %	-	-
Agrimax™ - C 220	hydroxypropyl cellulose	white to off-white granular solid	95,000	-	0.5 g/ml (bulk density)	100-150 (softening)	complete	-	-	-	43.6 @ 0.1 wt %	-	-
Agrimax™ - C 240	hydroxypropyl cellulose	white to off-white granular solid	340,000	-	0.5 g/ml (bulk density)	100-150 (softening)	complete	-	-	-	43.6 @ 0.1 wt %	-	-
Agrimax™ - C 260	hydroxypropyl cellulose	off-white powder	1,150,000	-	-	100-150 (softening)	soluble	-	-	-	-	-	-
Agrimax™ - C 300	methyl cellulose	-	-	-	-	-	complete	-	-	-	50-55	-	-
Agrimax™ - C 440	methyl hydroxypropyl cellulose	off-white powder	-	0.2-0.6	-	-	soluble	-	-	-	45-55 @ 0.1%	-	5.5-8 (1%)
Agrimax™ - C 460	methyl hydroxypropyl cellulose	off-white powder	-	0.2-0.6	-	-	soluble	-	-	-	45-55 @ 0.1%	-	5.5-8 (1%)
Agrimax™ - C 600	sodium carboxymethyl cellulose	off-white powder	~250,000	-	0.75 g/ml (bulk density)	-	soluble	-	-	-	71@ 1 wt %	-	-
Agrimax™ - C 610	sodium carboxymethyl cellulose	off-white powder	~250,000	-	0.75 g/ml (bulk density)	-	soluble	-	-	-	71@ 1 wt %	-	-
Agrimax™ - C 620	sodium carboxymethyl cellulose	off-white powder	~700,000	-	0.75 g/ml (bulk density)	-	soluble	-	-	-	71@ 1 wt %	-	-
Agrimax™ - C 630	sodium carboxymethyl cellulose	off-white powder	~700,000	-	0.75 g/ml (bulk density)	-	soluble	-	-	-	71@ 1 wt %	-	-
Agrimax™ - C 640	sodium carboxymethyl cellulose	off-white powder	-	-	-	-	swellable	-	-	-	-	-	-

■ commercial application □ potential application - n/a

Agrimax™ C

formulary type

	emulsifiable concentrate	suspension concentrate	micro-emulsion concentrate	suspoemulsions	soluble liquid	soluble powder	wettable powder	water-dispersible granule	oil dispersion	capsule suspension
Agrimax™ - C 100	-	□	-	-	-	■	■	■	-	-
Agrimax™ - C 200	-	□	-	-	-	■	■	■	-	-
Agrimax™ - C 220	-	□	-	-	-	■	■	■	-	-
Agrimax™ - C 240	-	□	-	-	-	■	■	■	-	-
Agrimax™ - C 260	□	□	-	-	-	■	■	■	-	-
Agrimax™ - C 300	□	□	-	-	-	■	■	■	-	-
Agrimax™ - C 440	-	□	-	-	-	■	■	■	-	-
Agrimax™ - C 460	-	□	-	-	-	■	■	■	-	-
Agrimax™ - C 600	-	□	-	-	-	■	■	■	-	-
Agrimax™ - C 610	-	□	-	-	-	■	■	■	-	-
Agrimax™ - C 620	-	□	-	-	-	■	■	■	-	-
Agrimax™ - C 630	-	□	-	-	-	■	■	■	-	-
Agrimax™ - C 640	-	-	-	-	-	-	-	-	-	-

Agrimax™ C

application

	adjuvant	formulation solvent	synthesis medium / reactant	wetting agent	defoamer	dispersant / co-dispersant	emulsifier	film-former	rainfastness	seed coatings	controlled release	crystal inhibition	emulsion stabilization	granulating agent	disintegrant	microencapsulation	opacifier	protective colloid	preservative
Agrimax™ - C 100	-	-	-	-	-	-	-	■	-	■	-	-	■	-	-	-	-	■	-
Agrimax™ - C 200	-	-	-	-	-	-	-	■	■	■	-	-	■	■	-	■	-	■	-
Agrimax™ - C 220	-	-	-	-	-	-	-	■	■	■	-	-	■	■	-	■	-	■	-
Agrimax™ - C 240	-	-	-	-	-	-	-	■	■	■	-	-	■	■	-	■	-	■	-
Agrimax™ - C 260	-	-	-	-	-	-	-	■	■	■	-	-	■	■	-	■	-	■	-
Agrimax™ - C 300	-	-	-	-	-	-	-	■	-	□	-	-	■	■	-	-	-	-	-
Agrimax™ - C 440	-	-	-	-	-	-	-	■	-	■	-	-	■	■	-	■	-	■	-
Agrimax™ - C 460	-	-	-	-	-	-	-	■	-	■	-	-	■	■	-	■	-	■	-
Agrimax™ - C 600	-	-	-	-	-	■	-	-	-	■	-	-	-	■	■	■	-	-	-
Agrimax™ - C 610	-	-	-	-	-	■	-	-	-	■	-	-	-	■	■	■	-	-	-
Agrimax™ - C 620	-	-	-	-	-	■	-	-	-	■	-	-	-	■	■	■	-	-	-
Agrimax™ - C 630	-	-	-	-	-	■	-	-	-	■	-	-	-	■	■	■	-	-	-
Agrimax™ - C 640	-	-	-	-	-	-	-	-	-	-	-	-	-	-	■	-	-	-	-

■ commercial application □ potential application - n/a

Agrimex™ C

regulatory

	inert ingredients – US EPA 40 CFR					
	B180:910	B180:920	B180:930	B180:950	B180:960	B180:1130
Agrimex™ - C 100	–	■	–	–	–	–
Agrimex™ - C 200	–	–	–	■	–	–
Agrimex™ - C 220	–	–	–	■	–	–
Agrimex™ - C 240	–	–	–	■	–	–
Agrimex™ - C 260	–	–	–	■	–	–
Agrimex™ - C 300	–	–	–	■	–	–
Agrimex™ - C 440	–	–	–	■	–	–
Agrimex™ - C 460	–	–	–	■	–	–
Agrimex™ - C 600	■	–	–	–	–	–
Agrimex™ - C 610	■	–	–	–	–	–
Agrimex™ - C 620	■	–	–	–	–	–
Agrimex™ - C 630	■	–	–	–	–	–
Agrimex™ - C 640	■	–	–	–	–	–

	global chemical inventories								
	USA	EU	Australia	Canada	China	Japan	Korea	New Zealand	Phillipines
	TSCA	REACH	AICS	DSL	IECSC	ENCS	KECI/ECL	NZLoC	PICCS
Agrimex™ - C 100	■	■	■	■	■	■	■	–	■
Agrimex™ - C 200	■	■	■	■	■	■	■	–	■
Agrimex™ - C 220	■	■	■	■	■	■	■	–	■
Agrimex™ - C 240	■	■	■	■	■	■	■	–	■
Agrimex™ - C 260	■	■	■	■	■	■	■	–	■
Agrimex™ - C 300	■	■	■	■	■	■	■	–	■
Agrimex™ - C 440	■	■	■	■	■	■	■	–	■
Agrimex™ - C 460	■	■	■	■	■	■	■	–	■
Agrimex™ - C 600	■	■	■	■	■	■	■	–	■
Agrimex™ - C 610	■	■	■	■	■	■	■	–	■
Agrimex™ - C 620	■	■	■	■	■	■	■	–	■
Agrimex™ - C 630	■	■	■	■	■	■	■	–	■
Agrimex™ - C 640	■	■	■	■	■	■	■	–	■

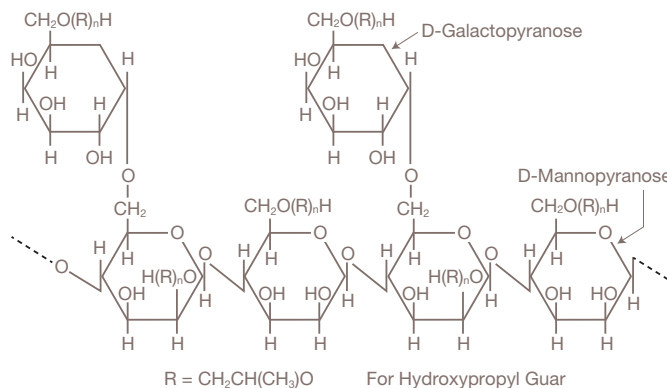
Agrimax™ GR

Guar offers solutions for the management of droplet size to minimize the effect of pesticide drift

chemistry

Agrimax™ GR 100 is a water-soluble guar offered as a powder. It is compatible with a wide range of polymers of different charges. It is used as stabilization and thickening of a product. Typical use level is between 0.1-2.0% on product basis

Agrimax™ GR 200 is a cold-water soluble polysaccharide derivative that is easily dispersed and provides high viscosity at low concentrations.



properties

	chemical description	appearance	molecular weight	bulk density (g/cc)	specific gravity @ 25 °C	Tg (° C)	solubility in water	flashpoint ° F (° C)	freezing point (° C)	HLB	surface tension @25 °C mN/M ²	active, %	pH range
Agrimax™ GR 100	guar	off white powder	-	-	0.6 g/ml (bulk density)	-	soluble	-	-	-	-	-	-
Agrimax™ GR 200	hydroxypropyl guar	pale yellow powder	-	-	0.6 g/ml (bulk density)	-	soluble	-	-	-	-	-	-

formulary type

	emulsifiable concentrate	suspension concentrate	micro-emulsion concentrate	suspoemulsions	soluble liquid	soluble powder	wettable powder	water-dispersible granule	oil dispersion	capsule suspension
Agrimax™ GR 100	-	■	-	■	-	■	■	■	-	-
Agrimax™ GR 200	-	■	-	■	-	■	■	■	-	-

application

	adjuvant	formulation solvent	synthesis medium / reactant	wetting agent	defoamer	dispersant / co-dispersant	emulsifier	film-former	rainfastness	seed coatings	controlled release	crystal inhibition	emulsion stabilization	granulating agent	disintegrant	microencapsulation	opacifier	protective colloid	preservative
Agrimax™ GR 100	■	-	-	-	-	-	-	-	-	■	-	-	■	-	-	-	-	-	-
Agrimax™ GR 200	■	-	-	-	-	-	-	-	-	■	-	-	■	-	-	-	-	-	-

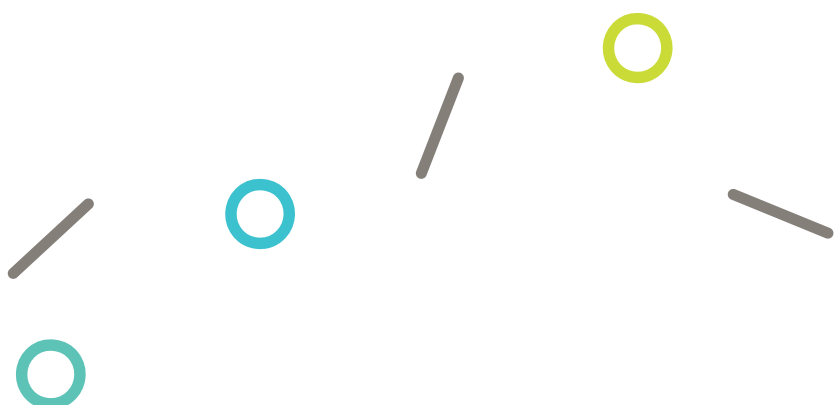
■ commercial application □ potential application - n/a

Agrimax™ GR

regulatory

	inert ingredients – US EPA 40 CFR					
	B180:910	B180:920	B180:930	B180:950	B180:960	B180:1130
Agrimax™ GR 100	–	–	–	■	–	–
Agrimax™ GR 200	–	■	–	–	–	–

	global chemical inventories								
	USA	EU	Australia	Canada	China	Japan	Korea	New Zealand	Phillipines
	TSCA	REACH	AICS	DSL	IECSC	ENCS	KECI/ECL	NZLoC	PICCS
Agrimax™ GR 100	■	■	■	■	■	■	■	–	■
Agrimax™ GR 200	■	■	■	■	–	–	■	–	■



AgsolEx™

chemistry

AgsolEx™ 1 water-soluble aprotic solvent with outstanding solvency for a broad range of actives. Used as synthetic media and in liquid formulations. Best used in combination with water insoluble solvents.

AgsolEx™ 8 water-insoluble surface active solvent ideal for liquid formulations; improves wetting, penetration of AI through the cuticle and inhibits crystal formation.

AgsolEx™ 8 and AgsolEx™ 12 have a unique combination of solvency and surface activity. AgsolEx™ 12 is more hydrophobic and surface active than AgsolEx™ 8.

AgsolEx™ BLO water-soluble solvent for liquid formulations, synthesis medium and intermediate. Reacts with free hydroxy or amino moieties. Avoid long-term storage with water. Best used in combination with water insoluble solvents.

properties

	chemical description	appearance	molecular weight	bulk density (g/cc)	specific gravity @ 25 °C	Tg (° C)	solubility in water	flashpoint ° F (° C)	freezing point (° C)	HLB	surface tension @25 °C mN/M ²	active, %	pH range
AgsolEx™ 1	N-methyl-2-pyrrolidone	clear liquid	1.65	-	1.027	202	complete	194 (90)	-24.4	-	42	-	-
AgsolEx™ 8	N-octyl-2-pyrrolidone	clear liquid	8	-	0.9	100 @0.3 mmHg	0.127	235 (112.8)	-25	6	28	-	-
AgsolEx™ 12	N-dodecyl-2-pyrrolidone	clear liquid	17	-	0.9	145 @ 0.2 mmHg	0.012	240 (115.6)	10	3	26	-	-
AgsolEx™ BLO	gamma-Butyrolactone	clear liquid	1.7	-	1.124	204	complete	200 (93.3)	-44	-	44	-	-

formulary type

	emulsifiable concentrate	suspension concentrate	micro-emulsion concentrate	suspoemulsions	soluble liquid	soluble powder	wettable powder	water dispersible granule	oil dispersion	capsule suspension
AgsolEx™ 1	■	-	■	■	■	-	-	-	-	-
AgsolEx™ 8	■	-	■	■	■	-	-	-	□	-
AgsolEx™ 12	■	-	■	■	■	-	-	-	□	-
AgsolEx™ BLO	■	-	■	■	■	-	-	-	-	-

■ commercial application □ potential application - n/a

AgsolEx™

applications

	adjuvant	formulation solvent	synthesis medium / reactant	wetting agent	defoamer	dispersant / co-dispersant	emulsifier	film-former	rainfastness	seed coatings	controlled release	crystal inhibition	emulsion stabilization	granulating agent	disintegrant	microencapsulation	opacifier	protective colloid	preservative
AgsolEx™ 1	-	■	■	-	-	-	-	-	-	□	-	-	-	-	-	-	-	-	-
AgsolEx™ 8	-	■	-	■	-	■	■	-	-	□	-	■	■	-	-	-	-	-	-
AgsolEx™ 12	-	■	-	■	-	■	■	-	-	□	-	■	■	-	-	-	-	-	-
AgsolEx™ BLO	-	■	■	-	-	-	-	-	-	□	-	-	-	-	-	-	-	-	-

regulatory

	inert ingredients – US EPA 40 CFR					
	β180:910	β180:920	β180:930	β180:950	β180:960	β180:1130
AgsolEx™ 1	-	■	-	-	-	-
AgsolEx™ 8	-	-	-	-	-	■
AgsolEx™ 12	-	-	-	-	-	■
AgsolEx™ BLO	-	■	-	-	-	-

	global chemical inventories								
	USA	EU	Australia	Canada	China	Japan	Korea	New Zealand	Phillipines
	TSCA	REACH	AICS	DSL	IECSC	ENCS	KECI/ECL	NZLoC	PICCS
AgsolEx™ 1	■	■	■	■	■	■	■	-	■
AgsolEx™ 8	■	■	■	■	■	■	■	-	■
AgsolEx™ 12	■	■	■	■	■	■	■	-	■
AgsolEx™ BLO	■	■	■	■	■	■	■	-	■

Grandlure Complete

chemistry

Grandlure Complete is a synthetic pheromone for Cotton boll Weevils which feeds on cotton buds and flowers.

Ashland has a long tradition of manufacturing pheromones at our Columbus facility Ohio USA, in addition to Grandlure complete we can consider for manufacturing, Trimedlure, Tricosene, Cuelure, Gossyplure, Disparlure and Lycolure.

identification

Common/Trade Names: Boll Weevil Aggregation Pheromone, Grandlure, Luretape.

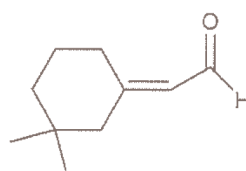
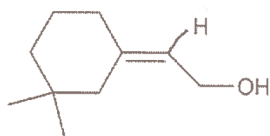
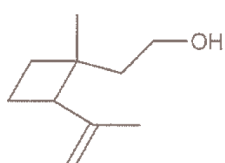
Other Code Numbers: CAS 11104-05-5.

chemistry

Composition: (cis)-1-methyl-2-(1-methylethenyl)cyclobutaneethanol (I), mixture with (Z)-2-(3,3-dimethylcyclohexylidene)-ethanol (II) and Z+E(3,3-dimethylcyclohexylidene)-acetaldehyde(III& IV) (CAS.)

Class: Attractant.

Properties: Clear to very pale yellow, slightly viscous liquid with a mild, pleasant odor. Melting point < - 40°C. Boiling point 240° (at 760 mm Hg). Vapor pressure N/ A. Specific gravity 0.922 g/ml at 20°C.



action/use

Action: Insect Pheromone.

Use: The boll weevil is the target insect. Once male boll weevils locate their host plant, cotton, feeding ensues, and the weevils release their aggregation pheromones to attract additional boll weevils to the aggregation site. Grandlure is used to lure boll weevils into traps.

Formulations: Traps are baited with one-inch square laminated polyvinyl chloride dispensers impregnated with Grandlure.

registration notes

Luretape*.

environmental guidelines

Hazards: To the best of our knowledge, the toxicological effects of this compound have not been fully explored.

Solubility (In Water): <1% at 25°C.

safety guidelines

Toxicity: To the best of our knowledge, the ecological effects of this compound have not been fully explored.

specifications

Test	Acceptance Criteria
Description	Clear, colorless to light yellow liquid Mild, pleasant odor
Identity (IR)	Conforms to standard
Purity (GC, DB-1 Capillary)	Not less than 95%
Isomer Content (DB-1 Capillary)	I 30 - 35%
	II 35 - 40%
	III 13 - 15%
	IV 13 - 15%

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