Sappi Valida

Fact Sheet

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Biobased and biodegradable stabiliser and film former in dust-off control

Product description

In 2019 the European Chemical Agency (ECHA) published their restriction proposal (Annex XV Restriction Report, version number:1.2; date: 22 August 2019) in which seed treatment sector is listed as one of the industries that contributes to the use of microplastics in consumers or professionals product.

Valida, Sappi's fibrillated cellulose is certified by TUV Austria for soil and marine biodegradability. This product feature renders Valida to be used as a bio-based stabiliser and film former in seed coating application.

The benefits of Valida as an adjuvant in seed treatment coatings can be described as follows:

- 100% biodegradable
- Film former with reduced dust-off
- Good flowability
- No negative impact on seed germination

To demonstrate the effect of Valida in seed coating application, we added Valida to the three types of commercially available seed formulation (Barley, Corn, and Oilseed rape) and tested the benefits of Valida as an adjuvant in improving dust-off without compromising the flowability and germination of the seeds.

Below is a seed treatment formulation example with oilseed rape seeds

The Oilseed rape with a Thousand Grain Weight(TGW) of 7.3 was used. The treatment specification is shown in the table below:

No.	Treatment	Carrier	Product dose	Carrier dose	Slurry dose*	Unit
1	Untreated check					
2	Lumiposa	Sepiret	941,93	2	30	G/100 KG
3	Scenic gold	Sepiret	854,00	2	30	G/100 KG
	Lumiposa	Sepiret	941,93	2	30	G/100 KG
4	Scenic gold	Sepiret	854,00	2	30	G/100 KG
	Lumiposa	Sepiret	941,93	2	30	G/100 KG
	Valida (10%)	Sepiret	300,00	2	30	G/100 KG

* Slurry dose = product dose + carrier dose + water

Sappi Maastricht BV
Biesenweg 16, 6211AA, Maastricht
The Netherlands
Tel: +31 43 38 22564

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This case study is intended to address 3 key questions below

1. **What is the effect of the addition of Valida to lumiposa and scenic gold on dust-off?**
   Answer: Valida has a positive effect on dust-off as it resulted in 2 fold reduction of dust-off value compared to lumiposa and scenic gold treatment.

Dust-off test:

Used technology: HEUBACH test
Maximum Level (ESTA): 0,5g/700.000

#	Treatment	Rep 1	Rep 2	Dust/ 100 kg	Dust/100K sds
2	Lumiposa	0,38	0,24	0,31	0,0023
3	Scenic gold + Lumiposa	0,39	0,35	0,37	0,0027
4	Scenic gold + Lumiposa + Valida	0,05	0,19	0,12	0,0009
	Reference value			9,78	0,0714

2. **Does the addition of Valida to lumiposa and scenic gold have a negative effect on seed quality?**
   Answer: Valida has a positive effect on flowability. It has the highest seed flow/second of all treatments. In terms of dry friability, it reduces the weight loss compared to the treatment with only Lumiposa and Scenic gold.

Flowability test:

Used technology: funnel test
Used seed volume: 300 grams

#	Treatment	Rep 1/second	Rep 2/second	Rep 3/second	Average	Seeds/second
2	Lumiposa	1,53	1,71	1,38	1,54	25086,28358
3	Scenic gold + Lumiposa	2,23	1,58	1,66	1,82	22538,87957
4	Scenic gold + Lumiposa + Valida	1,52	1,29	1,31	1,37	29924,19205

Dry friability test:

Used technology: Tablet friability tester
Number of rotations: 100 Rounds
Rotation speed: 25 rounds/minute

#	Treatment	% Weight reduce
2	Lumiposa	0,04%
3	Scenic gold + Lumiposa	0,39%
4	Scenic gold + Lumiposa + Valida	0,11%

3. **Does the addition of Valida to lumiposa and scenic gold have a negative effect on germination?**
   Answer: The addition of Valida has no negative effect on germination compared to the other treatments.

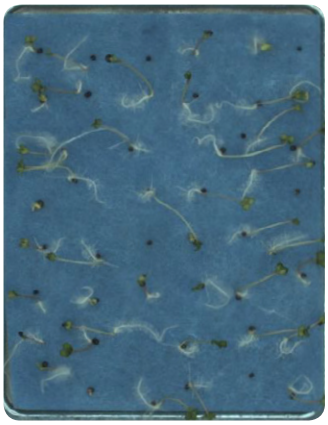
Blotter germination test:

Climate: 20°C - 16 hr light cycle
Media: Cellulose blotting paper
Irrigation: 30 ml
Irrigation solution: Tap water
Tray size: 15 x 21 cm stackable trays
Seeds/tray: 48

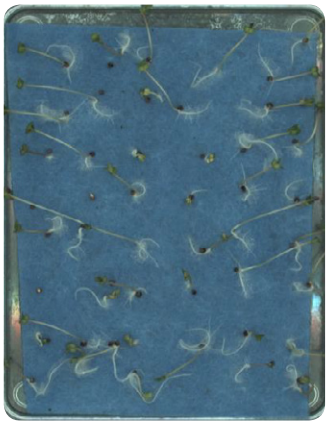
#	Treatment	GMAX	T50	U25-75
1	Untreated check	81%	40,4	4,5
2	Lumiposa	79%	39,7	4,4
3	Scenic gold + Lumiposa	79%	38,8	4,6
4	Scenic gold + Lumiposa + Valida	77%	38,6	4,5

GMAX = germination percentage at final stage
T50 = time to 50% germination
U25-75 = time between 25 and 75% germination (uniformity)

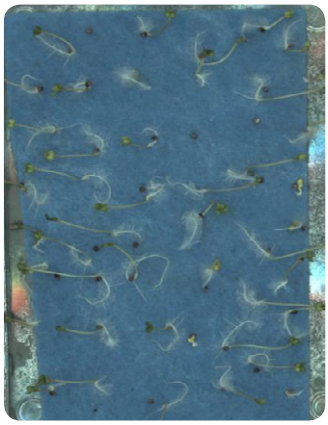
Untreated check



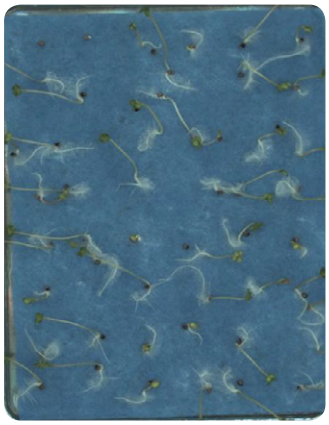
Lumiposa



Lumiposa + Scenic gold



Lumiposa + Scenic gold + Valida (10%)



Conclusion

With Sappi Valida, we enable the agricultural and horticultural industry that has replaced microplastic ingredients with natural and biodegradable ones. Please feel free to reach out to the Valida team and check how Valida helps businesses provide their customers with a sustainable microplastic-free solution.

Sappi

Sappi is a global diversified wood fibre group, focused on dissolving pulp, paper-based solutions and high quality functional biomaterials. Manufacturing operations can be found on 3 continents with sales in over 150 countries. Sappi is using its global leadership position and significant investment in research and development in coated graphics papers, speciality packaging grades, dissolving wood pulp and biorefinery processes to respond to the growing global demand for high quality functional biomaterials. If you would like to dive more into the Sappi world, please visit the Sappi website: www.sappi.com

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Valida

Valida is fibrillated cellulose manufactured by Sappi. The manufacturing process is designed to minimise energy use, thus lowering carbon footprint. Fibrillated cellulose is a 100% natural, biodegradable and sustainable material produced by mechanically processing wood derived fibers to their smallest components, resulting in a dramatically increased surface area and enhanced mechanical, optical, chemical and physical properties. These properties make fibrillated cellulose suitable for a wide range of applications, such as cosmetics, coatings, agricultural, concrete and more. For more information, please visit our website: www.sappi.com/valida-home

Appendix

TUV Biodegradable

Seed coating pic references:

Barley

Corn

Oilseed rape

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