ALSTA® HYDROGEL

SUPER ABSORBENT POLYMER FOR AGRICULTURE

ALSTA® HYDROGEL is a potassium based cross linking hydrogel polymer that can potentially influence soil permeability, density, structure, texture, evaporation and infiltration rate of water through the soil.

ALSTA® HYDROGEL particularly reduces the irrigation frequency and compaction tendency, it stop soil denudation and water runoff and increases microbial activity.

In arid areas, the use of ALSTA® HYDROGEL in the sandy soil (macro-porous medium) increases the water-holding capacity, and significantly improves the quality of plants. It slowly releases this absorbed water to the plants when needed.

ALSTA® HYDROGEL particles may be taken as "mini-water reservoirs" in soil. Water from these reservoirs is used upon the root demand through osmotic pressure difference. ALSTA® HYDROGEL also acts as a controlled release system by favoring the uptake of some nutrient elements, holding them tightly, and delaying their dissolution. Consequently, the plant can still access some of the fertilizers, resulting in improved growth and performance.

ALSTA® HYDROGEL also used as a retaining material in the form of a seed additive (to aid in germination and seedling establishment), seed coating, root dips, and for immobilizing plant growth regulator or protecting agents for controlled release.

CHEMICAL SPECIFICATIONS

Properties	Typical Value*
Form and Appearance	White Granules
Odor	Odorless
pH	8.0 ± 1.0
Solubility in water	Insoluble in water. Swells up
Toxicity (Oral LD_{50} in Rats)	5000 (Non-toxic)
Effectiveness in soil	3 - 4 years**

* The above values are only indicative and are not specific. Please refer COA.
** Depending on soil structure

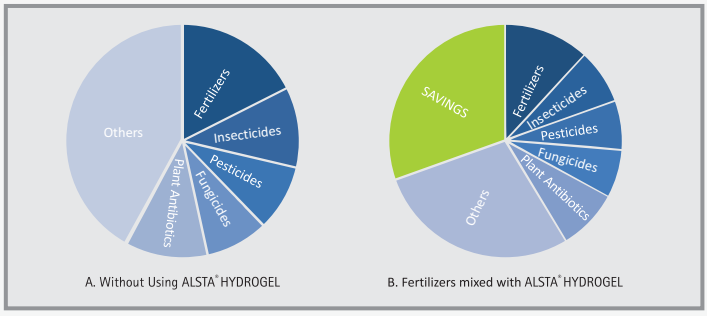


Fig.1. Alsta® Hydrogel Saves Fertilizer Use

FEATURES & BENEFITS

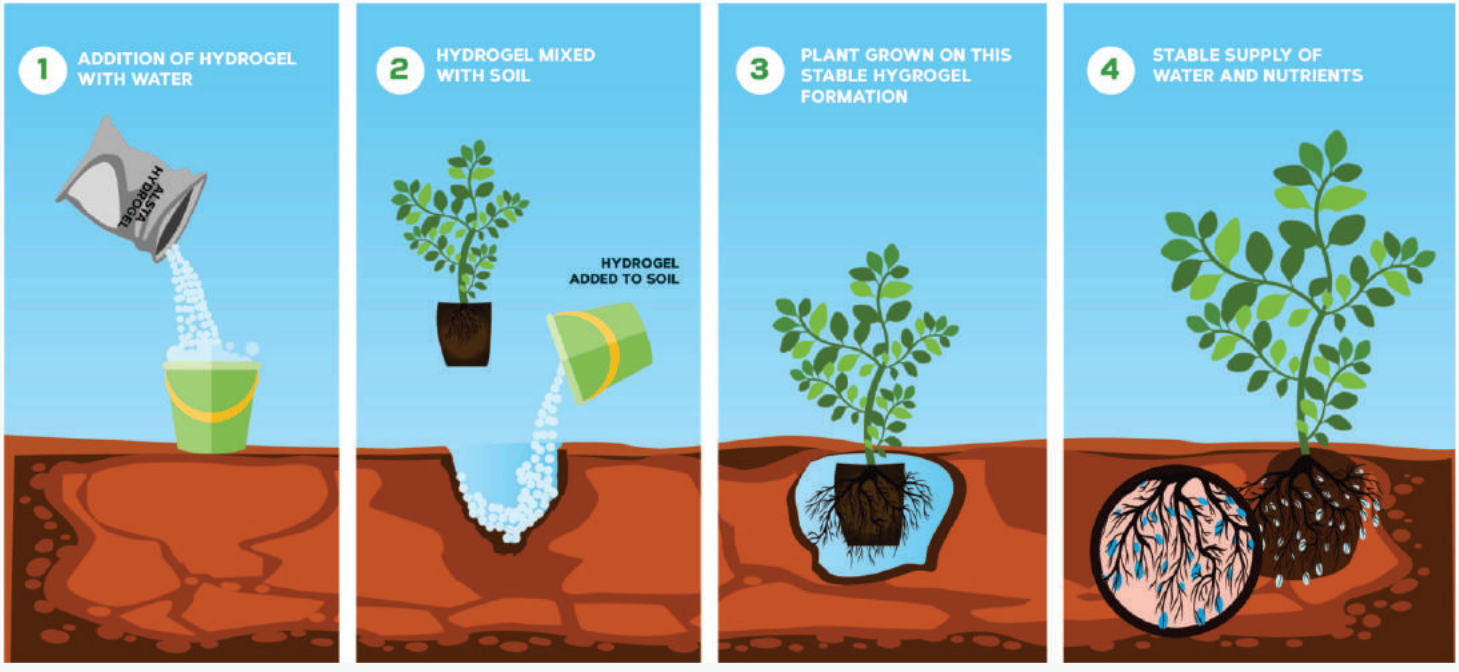
- Increases water holding capacity of the soil hence reducing irrigation frequency
- Limits water and nutrient loss through soil leaching
- Reduces water evaporation from the soil
- Improves physical properties of soil by enhancing microbial action
- Enhances plant growth by providing water and nutrients stably to the root zone of the plants
- Reduces compaction tendency
- Reduces erosion and water runoff
- Enhances plant performance specially in arid areas
- Helps in the long term protection of environment against drought and groundwater contamination
- Can be dry mixed with fertilizer preparations, reduces NPK leaching, and limiting usage

USES

- Prevents dehydration of the seedlings
- Reduces transplanting shock thereby reducing mortality rate of plants
- Mixed with cellulose mulch, helps stabilize newly graded soils which are able to maintain a minimum amount of surface water
- Used in large scale farming where it increases soil microbial action enhancing germination and root development
- When mixed with fertilizers, it can stably provide fertile nutrients to the roots for a longer period
- Absorbs water, fertilizer, fungicide and release them slowly to the plants upon need

APPLICATION PROTOCOL

- Bare Root Dipping: To prevent the dessication of the roots of seedlings during transplanting or transportation, 1 kg of ALSTA® HYDROGEL is mixed in 150 - 200 liters of water with/ without an additional fungicide/ bactericide, and allowing it to stand for 15 minutes.
- Arboriculture (Tree Plantation): ALSTA® HYDROGEL reduces mortality rate due to transplantation shocks and enhances root development of the plant. 10 - 50gms of ALSTA® HYDROGEL/ plants is mixed. After hydration, the product stabilizes the plant.
- Common plants such as vegetable plantations, etc: 5.0 - 6.0kg of ALSTA® HYDROGEL/ acre along with the above Arboriculturepractice improves and promotes seedling growth.
- Young plants: 10 - 20 gms of ALSTA® HYDROGEL/ tree is mixed with the soil matrix per tree.
- Fully grown trees such as mango, teak, etc: 100 - 200 gms of ALSTA® HYDROGEL/ tree is mixed with the soil matrix.



ALSTA® HYDROGEL cropwise application

With the sowing of seeds	
Lawn	100-200 gms/m^2 area
Leafy vegetables	5-6 kg/acre
Pulses, grains, etc.	5-10 kg/acre
Potato, ginger, turmeric	5-10kg/acre
Banana, papaya	80-100gms/plant
Sugarcane	10-20kg/acre
Cash crops	8-10kg/acre

Before raining	
Pot, ornamental plants	5 gms/pot
Cashew nut, sapota	40-60 gms/plant
Coconut, betelnut, mango	100-150 gms/ plant
Grapes, pomegranate, orange	50-80 gms/ plant
Medicinal plants, spices, fragrant plants	5-10kg/acre

For all methods of Alsta Hydrogel application, please contact your CSL representative or visit www.hydrogelagriculture.com

CERTIFICATIONS & APPROVAL

chemtex
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ISO 9001 : 2008, ISO 14001 : 2004 (EMS),
OHSAS 18001: 2007, WHO-GMP, CRISIL SE-1B certified company

Local Stockist

Safety Data Sheet
Alsta Hydrogel

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Section 1.
Chemical Product and Company Identification

In case of any emergency, contact Poison Control Center **1800-116-117**

Product Name	Alsta Hydrogel		
Product Description	Super Absorbent Polymer for Agriculture Potassium Polyacrylate based		
Manufacturer's Name	Chemtex Speciality Limited	Supplier's Name	Chemtex Speciality Limited
Address	Haute Street Corporate Park 86A Topsia Road (S), Kolkata 700046	Address	Haute Street Corporate Park 86A Topsia Road (S), Kolkata 700046
Contact Information	Ph: +91-33-7111-1111	Contact Information	Ph: +91-33-7111-1111
Email	info@chemtexlimited.com	Email	info@chemtexlimited.com
SDS Prepared	19/11/2014	SDS Revised	30/3/2018
Emergency Contact	No. +91-33-7111-1111	Mail: info@chemtexlimited.com	

Section 2.
Hazard Identification

Route of Entry	Eye Contact, Ingestion
OSHA Hazard Status	Not Regulated

Class	Pictogram (if available)	Hazard	Category	Hazard Statement	P codes
N/A	N/A	H320	N/A	Causes eye irritation	

P codes

P101	If medical advice is needed, have product container or label at hand.
P102	Keep out of reach of children.
P103	Read label before use.

Section 3.
Composition/ Information on Ingredients

Ingredients	CAS No.	% by wt.
Potassium Polyacrylate	25608-12-2	90.0 min
Inert ingredients	N/A	2.0 - 5.0

The information given above is a proprietary property of Chemtex Speciality Limited and it reserves all rights to protect it from being misused

Section 4.
First Aid Measures

Eyes	Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of cold water Get medical attention immediately.
Skin	Immediately flush skin with plenty of water while removing contaminated clothing and shoes. Wash with soap and cover the contaminated skin with an emollient. Wash clothing and shoes before reuse. Seek immediate medical attention.
Ingestion	Do NOT induce vomiting unless directed by any medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear. Administer 5% solution of sodium bicarbonate followed with milk.
Inhalation	If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

INDICATION OF IMMEDIATE MEDICAL ATTENTION AND SPECIAL TREATMENT NEEDED, IF NECESSARY. IF EXPOSED, CALL POISON CONTROL CENTER/DOCTOR/PHYSICIAN.

Section 5.
Fire Fighting Measures

Flammable	**No**		
Flash Point	N/A		
Flammability Point (% by volume)			
Lower	N/A	Upper	N/A
Autoignition Temperature		N/A	
Extinguishing Media		Use dry chemical powder in case of small fire. Use water spray, fog, foam for large fire.	
Fire Fighting Instructions		For small fires use water spray, dry chemical or CO2.	
Fire & Explosion Data		Non flammable. Non explosive.	
Special Hazards		Thermal decompositiion can lead to release of irritating gases and vapors.	

NFPA Symbol and Label

Health	1
Flamability	0
Reactivity	0
Special Notice	

Hazard Rating
4. Extreme
3. Serious
2. Moderate
1. Minimal
0. Slight

Section 6.
Accidental Release Measures

Small Spill	Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal containers. Do not let product enter drains and sewers. Wet product can create slippery conditions.
Large Spill	Absorb with dry earth, sand or other non-combustible material. Avoid contact with combustible materials such as wood, paper, oil, clothing. Prevent entry into sewers, basements or confined areas. Call for assistance on disposal. Wet product can create slippery conditions.

Section 7.
Handling Measures & Storage

Handling	Keep container dry and tightly closed in a cool, well ventilated area. Separate from acids, alkalis, reducing agents and combustibles. Keep away from heat and other sources of ignition. Do not ingest. Product is slippery when wet.
Storage	Store in cool location, away from open flames, hot surfaces and sources of ignition. Keep away from food and beverages. Protect from freezing and physical damage. Provide ventilation. Keep containers tightly sealed. Store away from incompatible materials.

Section 8.
Exposure Controls & Personal Protection

Exposure Limits	N/A
Specific Engineering Controls	Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapor and mists below OEL's.

Personal Protective Equipment

HMIS	PPE	Pictograms
D	Safety Glasses Gloves Dust Respirator	  

Section 9.
Physico-Chemical Data

Form	Granular
Appearance	White
Odor	Odorless
pH (dilution)	8.0 ± 1.0
Specific Gravity (20°C)	N/A
Solubility	Insoluble; Swells up

Additional Physico-chemical Data

Vapor Pressure	N/A
Volatility	N/A
Boiling Point	N/A
Flammability Point	>200°C

Section 10.
Stability and Reactivity

Chemical Stability	Stable under normal ambient conditions
Hazardous Polymerization	None under normal processing
Conditions to avoid	Moisture sensitive, incompatible materials, excessive heat
Incompatibility	Strong oxidizing agents
Corrosivity	N/A
Hazardous Decomposition	COx, sodium oxides

Special Remarks	Hygroscopic

Section 11.
Toxicological Information

Product	Oral LD50 (Rat) [mg/kg]	Dermal LD50 (Rats) [mg/kg]	Eye Irritation [Rabbit]
Alsta Hydrogel	>4000	>4000	Particle effect - Slight Eye Irritation

Carcinogenicity	Non Carcinogenic
Teratogenicity	Non Teratogenic
Mutagenicity	Non Mutagenic

Section 12.
Ecological Information

BOD/ COD	N/A
Biodegradation	Not rapidly degradable under aerobic conditions.
Fish Toxicity	*Leuciscus idus* : LC50 > 5500mg/L 96hrs
	Danio rerio : LC50 > 4000mg/L 96hrs
Marine Pollutant	N/A

Section 13.
Disposal Considerations

Product is non-hazardous waste material suitable for approved solid waste landfills

Section 14.
Transport Information

DOT Classification	Class
	Not Regulated

Classification for Air Transport (IATA/ICAO)	
Proper Shipping Name	Not Regulated
UN No.	Not Regulated
Packing Group	Not Regulated
Classification for Sea Transport (IMO/IMDG)	
Proper Shipping Name	Not Regulated
UN No.	Not Regulated
Packing Group	Not Regulated
Classification for Road Transport (ADR/RID)	
Proper Shipping Name	Not Regulated
UN No.	Not Regulated
Packing Group	Not Regulated

Section 15.
Regulatory Information

OSHA Hazard Status	Not Regulated
HSN	39069090

Section 16.
Other Information

SDS Creation	19/11/2014	SDS Revision	30/3/2018

Abbreviations

N/A	Not Applicable
LEL	Lower Explosion Limit
UEL	Upper Explosion Limit
TLV	Threshold Limit Value
TWA	Time Weighted Average
LD50	Lethal Dose Concentration that kills 50% dosed group
LC50	Lethal Concentration that kills 50% of dosed group
PPM	Parts Per Million
LSL	Lower Specification Limit
USL	Upper Specification Limit

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Item Name : **Alsta Hydrogel**
Batch No.& Date : 42909 dt. Jul-20
Expiry Date : Jul-22

Result of Test Conducted on Date 24.07.2020

Attribute	Specification	Value Obtained
Form & Appearance	White Granular	Confirm
Odor	Nil	Confirm
pH (dilution)	8.0 ± 1.0	8.1
Assay as Potassium Polyacrylate	90.0% min	92.7%
Water Absorption Capacity	500gms ± 100	471gms
Solubility	Insoluble. Swells up	Confirm

Remarks : **Material Tested and Found OK**

For **CHEMTEX SPECIALITY LTD**

Sd/-

(Sr. Chemist)

(THIS IS A COMPUTER GENERATED CERTIFICATE AND DOES NOT REQUIRE ANY SIGNATURE)

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Batch Details	
Product Name	Alsta Hydrogel
Product Description	Super Absorbent Polymer for Agriculture
Test Conducted Date	30-08-19

Composition	Percentages as is
Potassium Polyacrylate	***93.70%***
as Potassium	23.72%
Sodium Sulphate	***1.35%***
as Sodium	0.44%
as Sulphur	0.30%
Ash Content	***4.95%***
as Carbon	1.25%

This is to certify that the above material has been tested as per Chemtex sales specifications and the material complies with the listed specifications when supplied in original packing. No additional warranty of any kind is expressed or implied.

Quality Assurance

This document is valid without signature

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CIN: U24100WB2008PLC127895
ISO 9001:2015 (QMS), ISO 14001:2015 (EMS), OHSAS 18001:2007
WHO-GMP Certified, CRISIL 2B Rated, REACH Certified, FSSAI
Since 1970

ALSTA HYDROGEL

Super Absorbent Polymer for Agriculture

Method #1:

1. Weigh required amount of Alsta Hydrogel in a beaker.
2. Add 1L of water to the granules.
3. Dig a hole around the root of the plant.
4. Pour entire contents into the specific soil area.
5. Cover area with soil.
6. Moisten area again with manual sprinkler.

Method #2:

1. Weigh required amount of Alsta Hydrogel in a bucket.
2. Dry mix with required amount of fertilizers, if required.
3. Dig a hole around the root of the plant.
4. Sow contents into the specific soil area.
5. Sprinkle water and cover area with soil.
6. Moisten area again with manual sprinkler.

Dosage for plants:

Common plants and trees: 1.5 - 3.0kgs of Alsta Hydrogel per acre along with the Arboriculture practice improves and promotes seedling growth.

Grass Carpet: 50 – 100 g/m^2 area.

Young plants: 10 - 20gms of Alsta Hydrogel is mixed with the soil matrix per tree.

Fully grown trees: 40 - 100gms of Alsta Hydrogel per tree is mixed with the soil matrix.

Hydro seeding: Alsta Hydrogel is commonly used in hydro seeding to stabilize newly graded soils. Mixed with cellulose mulch, it maintains a minimum surface area, permitting rapid sprouting of seedlings even in dry areas.

Bare Root Dipping: To prevent desiccation of the roots of seedlings during transplanting or transportation, 1 kg of Alsta Hydrogel in mixed in 150 - 200L of water with/ without an additional fungicide/ bactericide, and allowing it to stand for 15 minutes.

Arboriculture: Alsta Hydrogel reduces mortality rate due to transplantation shocks and enhances root development. A hole is dug about three times the volume of the root, at the plantation site, and 1 - 2kgs of Alsta Hydrogel per m^3 of soil is mixed. The plant is placed the bottom of the hole and is evenly filled with the treated soil. The top surface is covered with 5 cm of untreated soil so as to prevent UV degradation of the product.

Mixing with Fertilizers: Alsta Hydrogel may be mixed dry into fertilizer preparations to reduce leaching of nutrients. Dosage 1 - 5 kg by weight. Helps in saving nearly 15 - 30% in fertilizer usage, reducing costs.

Chemtex Speciality Ltd.

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ALSTA HYDROGEL

Super Absorbent Polymer for Agriculture

Hydroponics/ Soil less Media: Alsta Hydrogel reduces the water stress when mixed with a substrate. For fully permeable mixes like barks, wood fiber, etc., 2 - 3kgs of Alsta Hydrogel per m^3 of the substrate is mixed. For less permeable ones like peat or composts, 1 - 2kgs of Alsta Hydrogel per m^3 of the substrate is mixed.

Precautions:

Wet hydrogel creates slippery surface if not covered with soil, wear protective glasses while working with hydrogel, do not eat, drink or smoke while working with hydrogel. Wash hands carefully with soap after work. First Aid: In case of contact with eyes wash out all the hydrogel from your eyes and continue washing them for a few more minutes. The same applies for skin contact. Seek medical aid in case of continued irritation or allergic reaction. Storage: Store in sealed bags in dry environment with temperature of 5 – 45°C.

NOT FOR INGESTION. KEEP AWAY FROM CHILDREN.

Chemtex Speciality Ltd.

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NATIONAL TOXICOLOGY CENTRE

APPROVED BY **FDA** - MAHARASHTRA STATE LIC. NO. P-D-T-L-7
ISO 9001:2008 CERTIFIED LABORATORY (Regd. No. IPU-0152.07)
S. No. 36/1/1, M.N. 199, Vadgaon Khurd, Pune 411041 • Tel.: 020 - **24392933**

REPORT NO.181/1317
Date: 19/August/2013

C E R T I F I C A T E

This is to certify that the LD_{50} value of "ALSTA HYDROGEL" supplied by M/s. CHEMTEX SPECIALITY LIMITED., Haute Street, Unit No. 111, 86A Topsia Road (S) On E.M.Bypass, Kolkata - 700 046, W.B., India, according to the OECD Guidelines, 423, Adopted 17th December 2001, in albino mice by the oral route, was found to be in GHS Category,> 2000 - 5000 mg/kg body weight, with a LD_{50} cut off at 5000 mg/kg body weight.

The report of the toxicity test conducted has been submitted though Study Code No. 181/1317.

As the oral LD_{50} cut off value was found to be at 5000 mg/kg, it can be concluded that the test material ALSTA HYDROGEL is safe for use in agriculture purpose.

NTC is approved by the Food and Drug Administration, Maharashtra State, Pune through License No. P.D-T-L7.

(Dr. K. G. Apte),
Study Director.

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Guideline: Active Ingredient Dossier

1. Designation
   1.1. Common Name (ISO): Hydrogel
   1.2. Manufacturer/ Development Code: Alsta Hydrogel
   1.3. Chemical Name (IUPAC): Poly (potassium prop-2-enoate)
   1.4. Chemical Group: Potassium Salt of Acrylate
   1.5. Structural Formula: $-CH_2-CH(CO_2K)-$
   1.6. Empirical Formula: $(C_3H_3KO_2)_n$
   1.7. Patent Status: Alsta Hydrogel
2. Physical and Chemical Properties
   2.1. Physical state: Granular
   2.2. Color: White
   2.3. Odor: Odorless
   2.4. pH (in dilution): N/A
   2.5. Density at 25°C: 0.4g/mL
   2.6. VOC Content: <3%
   2.7. Volatility: Restricted
   2.8. Photolysis: N/A
   2.9. Solubility in water: Insoluble; Swells Up
3. Behavior in Environment
   3.1. Mobility: Swelling increases with the increase in potassium polyacrylate ions in the polymer chain but excess of ions leads to an increase in the solubility of the co-polymer at a fixed cross linker concentration and decreasing the absorbing capacity of water.
   3.2. Absorption: Water Absorbency of Hydrogel can be measured using the following equation; Water Absorbency = (Mass of the weight of the water swollen gel – Mass of the weight of the absorbent)/ Mass of the weight of the absorbent; Expressed in grams of water retained in the gel by a gram for dried gel; Approximate value was found to be in the range of 450 – 500.
   3.3. Behavior and ways of degradation, degradation products in water: Biodegradability of Alsta hydrogel plays an important role in protecting soil and groundwater resources. Alsta Hydrogel degrades after N_{180} days; variation between 0.40 % in loamy sand and 0.85 % in loam. Rate of degradation does not change significantly between 20°C – 30°C after 3 months.
4. Residues in the plant
   4.1. Metabolism: Upon its application, it mixes up with soil particles and swells up on contact with water. The hydrophilic functional group present can absorb water to about 500 times of its own weight to form crystal like structure. As soon as the conditions become dry, it starts releasing water molecules, which can be directly accessed by the roots of the plants.
   4.2. Behavior of residues: Hydrogel polymer also absorbs nutrients from the soil that are utilized by plants for carrying out various physiological processes.
   4.3. Crop: Typical
   4.4. Method of Residue Analysis: N/A

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Guidelines: Formulated Product Dossier

5. Physical and Chemical Properties of the formulated product.
   - 5.1. Physical state/ Formulation type: White Granules
   - 5.2. Color: Colorless
   - 5.3. Odor: Odorless
   - 5.4. Shelf life: 36 – 60 months
   - 5.5. pH (in dilution): N/A
   - 5.6. Bulk Density: N/A
   - 5.7. Flammability: Non flammable
   - 5.8. Melting Point: >194°C/ 381.2F
   - 5.9. Flash point: >200°C/ 392F
   - 5.10. Compatibility with other fertilizers: Yes
   - 5.11. Moisture Content: Nil
   - 5.12. Solubility in water: Insoluble; Swells Up
   - 5.13. Foaming: Does not occur
   - 5.14. Mesh size: 3 – 100
   - 5.15. Suspensibility/ Emulsifiability: N/A
   - 5.16. Emulsion stability: High
   - 5.17. Volatility(Henry's law of constant): N/A
   - 5.18. Viscosity: N/A
   - 5.19. Other properties: N/A
   - 5.20. Method of analysis: N/A
6. Toxicology
   - 6.1. LD_{50} Rat
     - 6.1.1. Oral: > 4000mg/kg body wt.
     - 6.1.2. Dermal: > 4000mg/kg body wt.
7. Emergency measures: Refer Safety Data Sheet
8. Emergency procedures in cases of fire/spillage: Refer Safety Data Sheet
9. Uses
   - 9.1. Crop/ Area of use
     - 9.1.1. Premises
       - 9.1.1.1. Bare Foot Dipping
       - 9.1.1.2. Arboriculture
       - 9.1.1.3. Common Plants such as vegetable plantations
       - 9.1.1.4. Young Plants
       - 9.1.1.5. Fully grown Plants
       - 9.1.1.6. Hydroponics / Soil less media
     - 9.1.2. Storage: Store in a cool area. Keep out of direct sunlight. Store in a dark area. Keep container in a well-ventilated place. Fireproof storeroom. Under a shelter/in the open. Keep only in the original containers only. Meet the legal requirements.
     - 9.1.3. Dosage instructions

9.1.3.1. Bare Root Dipping: 1 kg/150 – 200 liters of water

9.1.3.2. Arboriculture (Tree plantation): 10 – 50 g/plant is mixed

9.1.3.3. Common Plants such as vegetable plantations: 5.0 -6.0 kg/acre

9.1.3.4. Young Plants: 10 – 20 g/tree

9.1.3.5. Fully grown trees like mango, teak: 100-200gms/tree

9.1.3.6. Soil less/ Hydroponics Treatment: 2-3 Kg/m^3 of the substrate

9.1.4. Stage of Treatment: Pre-planting

9.1.5. Directions for Use: Refer MOU for Agriculture

9.1.6. Residue Data and Pre Harvest Interval: Log P_{ow} of (-) 1.57 negates the chances of bioaccumulation.

9.1.7. Phytotoxicity: None.

9.1.8. Contradictions: Organic materials, reducing agents, rust, dirt, metals like tin, chromium, copper, iron, lead, manganese, nickel, zinc.

9.1.9. Resistance Code: N/A

10. Method of evaluation: Field crop

10.1. Location of experiment: Open test field

10.2. Detail of Experiment: Treatment, Observation, Crop: Rice, Variety: Bahadur

10.3. Treatment combination: The three treatment combinations tested were as follows:

10.3.1. T1: Control with untreated soil with 3:1:1 NPK fertilizer treatment

10.3.2. T2: Treatment with 190gms of Alsta Hydrogel @8kgs/acre dosage with 1.5:0.5:0.5 NPK fertilizer treatment

10.3.3. T3: Treatment with 300gms of Alsta Hydrogel @12.5kgs/acre dosage with 1.5:0.5:0.5 NPK fertilizer treatment

10.4. Results:

Treatments	Physical Properties			Chemical Properties		Biological Properties		Grain yield
	Color	Texture	Pore space	Soil pH	Residual toxicity	CFU	Insect/pest incidence (%) [Annelids]	
T1	-	-	-	-	-	+	-	4.9[a]
T2	-	+	+	-	-	+	+	6.3[d]
T3	-	+	+	+	-	+	+	6.5[b]
CD (p=0.50)								1.01

+: Change observed, -: Change absent

Results: Soil application of Alsta Hydrogel showed positive result in yield per plant. Alsta Hydrogel application did not alter soil properties during or after trial. Soil application with 8kgs/ Acre dosage showed maximum yield, saving 50% fertilizer usage and none residual toxicity.

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ISO 9001:2015 (QMS), ISO 14001:2015 (EMS), OHSAS 18001:2007
WHO-GMP Certified, CRISIL 2B Rated, REACH Certified, FSSAI
Since 1970

CERTIFICATE

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This is to certify that "Alsta Hydrogel" manufactured by Chemtex Speciality Limited does not contain heavy metals, and is non-corrosive in nature.

Alsta Hydrogel is in accordance with Code of Federal Regulations Title 21. It is a polyacrylate based superabsorbent polymer conforming to the Total Extractives - FDA food contact article test in accordance with 21 CFR 175.300/ 21 CFR 174.5402(a) and 21 CFR 175.300/ 21 CFR 177.121(b).

Alsta Hydrogel has typical uses in agriculture and lacks radioactive materials in composition. The contents of radioactive nature are nil and/ or BDL*.

Alsta Hydrogel has nil presence of microbial flora, or any other source of pathogenicity.

It is safe for human handling# when used under guided precautions and in recommended conditions. It is free of chemicals are deemed non-carcinogenic, nontoxic and free from ozone depleting substances as listed here under.

Element/Compound	Categorised/Termed
1. Lead (Pb)	Heavy Metal - Toxic
2. Arsenic (As)	Poison
3. Phenol (Carbolic Acid)	Toxic
4. ODS	Ozone Depleting Substance
5. Carcinogens	Carcinogenic Substance
6. Chromium (Cr)	Toxic/ Carcinogenic

*BDL (Below Detection Limit) = 0.5Bq/kg
#PPE: Gloves, Safety Goggles, Dust Respirator

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Haute Street Corporate Park,
86A Topsia Road (S), Kolkata 700046
Email: info@chemtexlimited.com
www.chemtexltd.com

CERTIFICATE

This is to certify that Alsta Hydrogel manufactured by Chemtex Speciality Ltd., is in accordance with Code of Federal Regulations Title 21.

Alsta Hydrogel is a polyacrylate based superabsorbent polymer conforming to the Total Extractives - FDA food contact article test in accordance with 21 CFR 175.300/ 21 CFR 174.5402(a) and
21 CFR 175.300/ 21 CFR 177.121(b)

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CERTIFICATE

chemtex

Sub: Certificate lacking of radiation (in Bq/Kg)

This is to certify that "Alsta Hydrogel: Superabsorbent polymer for agriculture" of Chemtex Speciality Limited lacks radioactive materials in composition. The contents are nil and/ or BDL*.

*(BDL = 0.5Bq/kg)

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