Product Safety Assessment

MoistStar™ HA+ Polymers


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Names
- MoistStar™ HA+ Polymers
- Polyaquaternium-67 and Hyaluronic Acid
- INCI name: MoistStar HA+ Skin Moisturizing Agent
- Cellulose, ether with α-[2-hydroxy-3-(trimethylammonio) propyl]-ω-hydroxypoly(oxy-1,2-ethanediyl) chloride
- INCI name: Polyaquaternium-67 and hyaluronic acid

Product Overview
- MoistStar™ HA+ polymers are clear to hazy, viscous liquid formulations. These polymers are water-based complexes of sodium hyaluronate and Polyaquaternium-67 polymer.\(^1,2\) For further details, see Product Description.
- MoistStar HA+ polymers are added to skin-care products such as gels, lotions, and creams to help improve moisturizing performance.\(^3\) For further details, see Product Uses.
- Workplace exposure to MoistStar HA+ polymers is possible during formulation, manufacture, transport, and/or use. Consumers may use skin or personal-care products that contain small amounts of these polymers.\(^1\) For further details, see Exposure Potential.
- In industrial settings, eye contact with the pure Polyaquaternium-67 component may cause slight irritation; however, MoistStar HA+ polymers contain only dilute concentrations of this component (less than 5%). Prolonged exposure to Polyaquaternium-67 may cause slight skin irritation with local redness. Single exposure to product vapor is unlikely to be harmful.\(^1,4\) For further details, see Health Information and the relevant Safety Data Sheet.
- The components in MoistStar HA+ polymers are expected to be inert in the environment. The components are not expected to accumulate in the food chain (low bioconcentration potential). The Polyaquaternium-67 component is not considered biodegradable; however, is expected to degrade slowly in the environment. Pure Polyaquaternium-67 polymers are toxic to aquatic organisms on an acute basis (LC\textsubscript{50}/EC\textsubscript{50} between 1 and 10 mg/L in the most sensitive species tested); however, MoistStar HA+ polymers contain only dilute concentrations of this component (less than 5%).\(^1\) For further details, see Environmental Information.
- MoistStar HA+ polymers are stable under recommended storage and use conditions. MoistStar HA+ polymers should not be exposed to temperatures above 120°F (49°C).\(^1,3\) For further details, see Physical Hazard Information.

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Product Safety Assessment: MoistStar™ HA+ Polymers

Manufacture of Product
- **Manufacturer** – MoistStar™ HA+ polymers are produced by approved external manufacturers to meet the product specifications of The Dow Chemical Company. They are produced globally in quantities sufficient to meet market demand.
- **Process** – The Polyquaternium-67 component of MoistStar HA+ polymers is produced synthetically using a raw material derived from cellulose. The sodium salt of hyaluronic acid component is produced by fermentation. MoistStar HA+ products are formulated using proprietary technology.

**Product Description**
MoistStar™ HA+ polymers are formulated as clear to hazy, viscous (thick) liquid complexes of sodium hyaluronate (a hyaluronic acid salt, less than 2%) and Polyquaternium-67 polymer (less than 5%) in a water solution. These polymer complexes are hyaluronic acid “performance enhancers.” Hyaluronic acid is a large molecule made up of multiple sugar units. It occurs naturally in the human body in the skin, connective tissues, and synovial (joint) fluid. On the molecular level, hyaluronic acid attracts and encapsulates water molecules. Complexing hyaluronic acid with polyquaternium polymers enables it to strongly adhere to skin, helping to provide a long-lasting, light moisturizing effect.

**Product Uses**
MoistStar™ HA+ polymers are used in skin-care products to help provide enhanced moisturizing performance. MoistStar HA+ polymers are used in facial moisturizing creams and gels, moisturizing hand/body creams, anti-aging serums, and skin-treatment complexes.

**Exposure Potential**
MoistStar™ HA+ polymers are used in the production of skin-care products. Based on this use, individuals could be exposed through:
- **Workplace exposure** – Those working with MoistStar HA+ polymers in manufacturing and/or formulating operations could be exposed during maintenance, sampling, testing, or other procedures. Each manufacturing facility should have a thorough training program for employees and appropriate work processes and safety equipment in place to limit exposure. See [Health Information](#).
- **Consumer exposure to products containing MoistStar HA+ polymers** – MoistStar HA+ polymers are not sold for direct consumer use, but small amounts are formulated into skin-care products used by individuals. Hyaluronic acid and its salts have been evaluated by the Cosmetic Ingredient Review (CIR) Expert Panel and deemed safe as cosmetic ingredients. Always read and follow product label instructions before use. See [Health Information](#).
- **Environmental releases** – Because MoistStar HA+ polymers are formulated into skin-care products, small quantities could enter wastewater-treatment facilities when consumer products are washed off or discarded. Although polyquaternium compounds are not considered readily biodegradable, they will be removed by wastewater-treatment facilities by adsorption to biosolids. The pure Polyquaternium-67 polymer component is toxic to aquatic organisms on an acute basis; however, MoistStar HA+ polymers contain only dilute concentrations of this component (less than 5%). See [Environmental, Health, and Physical Hazard Information](#).
- **Large release** – Industrial spills or releases are infrequent and generally contained. If a large spill does occur, the focus is on immediate containment to prevent contamination of soil, surface water, and groundwater. Evacuate personnel and ventilate the area. Dike the spill and absorb with noncombustible solids, such as sand, silica gel, acid binder, or sawdust. Keep spills and cleaning runoff from entering sewers and open bodies of water. Collect clean-up material in suitable and properly labeled containers for disposal. Spill area may be slippery. Use appropriate safety equipment. See [Environmental, Health, and Physical Hazard Information](#).
- **In case of fire** – Isolate the area and deny any unnecessary entry. Remain upwind. Product is not combustible until evaporated to dryness. Dried residue can burn. To extinguish combustible residues, use extinguishing media appropriate for the surrounding fire. Remove any containers from the fire zone. If removal is not possible, cool containers with water spray. Closed containers may rupture via pressure build-up when exposed to fire or extreme heat. During a fire, irritating and highly toxic gases and/or fumes may be generated by combustion or decomposition. Firefighters should wear positive-pressure, self-contained breathing apparatus (SCBA) and protective firefighting clothing. Follow emergency procedures outlined in the [Safety Data Sheet](#) carefully. See [Environmental, Health, and Physical Hazard Information](#).

For more information, request the relevant Safety Data Sheet from the [Dow Customer Information Group](#).

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Health Information

MoistStar™ HA+ polymers are solutions containing primarily water with dilute concentrations of Polyquaternium-67 (less than 5%) and sodium hyaluronate (less than 2%), a salt of hyaluronic acid. The safety of hyaluronic acid and its salts have been assessed by the Cosmetic Ingredient Review (CIR) Expert Panel. The CIR Expert Panel evaluated the scientific data and concluded that hyaluronic acid and its salts are safe for use in skin-care products.

The Safety Data Sheet available from the Dow Customer Information Group is the preferred source for specific health information. An overview of health information for MoistStar HA+ polymers appears below.

**Eye contact** – Contact with the Polyquaternium-67 component may cause slight irritation. Corneal injury is unlikely.

**Skin contact** – Brief contact is essentially nonirritating to the skin. Prolonged contact with the Polyquaternium-67 component may cause slight skin irritation with local redness. Prolonged skin contact is unlikely to result in absorption of harmful amounts.

**Inhalation** – Product vapor is primarily water. A single exposure to product vapor is not likely to be hazardous.

**Ingestion** – These products have very low oral toxicity. Harmful effects are not anticipated from swallowing small amounts.

**Other** – Kidney and liver effects have been reported in laboratory animals: however, these effects are unlikely to occur in humans. In vitro and animal genetic toxicity studies were predominantly negative. Based on these data, MoistStar HA+ polymers are presumed not to cause genotoxic effects.

For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.

Environmental Information

MoistStar™ HA+ polymers are solutions containing primarily water with small concentrations of Polyquaternium-67 (less than 5%) and sodium hyaluronate (less than 2%), a salt of hyaluronic acid. The Safety Data Sheet available from the Dow Customer Information Group is the preferred source for specific environmental information. An overview of environmental information for MoistStar HA+ polymers appears below.

MoistStar HA+ polymers are water-based complexes of polyquaternium-67 polymer and hyaluronic acid salt. These complexes are expected to be inert in the environment. The Polyquaternium-67 polymer component is expected to be removed by adsorption to biosolids during wastewater-treatment processes. If released to surface waters, the Polyquaternium-67 polymer would initially remain dispersed in water and eventually adsorb onto sediments and suspended solids.

Polyquaternium-67 polymer is not considered biodegradable. However, it is likely to degrade slowly in the environment, including degradation by physical action or upon exposure to sunlight.

Because of its high molecular weight, Polyquaternium-67 polymer has a low tendency to accumulate in the food chain (low bioconcentration potential). The Polyquaternium-67 polymer component exhibits toxicity to aquatic organisms on an acute basis ($LC_{50}/EC_{50}$ between 1 and 10 mg/L in the most sensitive species tested; however, MoistStar HA+ polymers contain only dilute concentrations of this component (less than 5%). The toxicity of MoistStar HA+ polymers has not been directly tested.

Sodium hyaluronate is water soluble, and if released to the environment, will have a tendency to migrate to or remain in water. Sodium hyaluronate is a salt of hyaluronic acid, which is a natural product. It is not persistent, exhibits low potential to bioaccumulate, and is not expected to be toxic to aquatic organisms on an acute basis.

For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.
Physical Hazard Information

MoistStar™ HA+ polymers are stable under recommended storage and normal use conditions. MoistStar HA+ polymers should not be exposed to temperatures above 49°C (120°F).

For more information, request the relevant Safety Data Sheet from the Dow Customer Information Group.

Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of MoistStar™ HA+ polymers. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant Safety Data Sheet available from the Dow Customer Information Group or Contact Us.

Additional Information

- Request the relevant Safety Data Sheet from the Dow Customer Information Group (www.dow.com/assistance/dowcig.htm)
- Request the relevant Product Label from the Dow Customer Information Group (www.dow.com/assistance/dowcig.htm)
- Download Technical Data Sheet (www.dow.com/personalcare/products/)
- Contact Us (www.dow.com/personalcare/contact/)
- “Hyaluronic Acid,” The Personal Care Products Council, CosmeticsInfo.org (www.cosmeticsinfo.org/search/node)

For more business information about MoistStar™ HA+ Polymers, visit the Dow Personal Care website at www.dow.com/personalcare/.

References

1 Rohm and Haas Chemicals LLC. MoistStar™ HA+ Polymer, Safety Data Sheet.
3 The Dow Chemical Company. MoistStar™ HA+ Moisturizing Technology, Technical Data Sheet.
NOTICES

As part of its 2015 Sustainability Goals, Dow has committed to make publicly available safety assessments for its products globally. This product safety assessment is intended to give general information about the chemical (or categories of chemicals) addressed. It is not intended to provide an in-depth discussion of health and safety information. Additional information is available through the relevant Safety Data Sheet, which should be consulted before use of the chemical. This product safety assessment does not replace required communication documents such as the Safety Data Sheet.

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