Product Safety Assessment

**UCARE™ Polymers**

Select a Topic:
- Names
- Product Overview
- Manufacture of Product
- Product Description
- Product Uses
- Exposure Potential
- Health Information
- Environmental Information
- Physical Hazard Information
- Regulatory Information
- Additional Information
- References

**Names**
- CAS No. 68610-92-4
- UCARE™ Polymer LR 400 MB
- UCARE Polymer JR 400
- UCARE Polymer JR 125
- UCARE Polymer LR 30M
- UCARE Polymer JR 400 (code 31)
- Cationic hydroxyethylcellulose
- Polyquaternium-10
- UCARE™ Polymer LR 400
- UCARE Polymer LR 30M
- UCARE Polymer JR 30M
- UCARE Polymer KG
- UCARE Polymer JR 400 LT
- PQ-10

**Product Overview**
- UCARE™ polymers are cationic, multifunctional polymers. They are available as white to off-white powder or granules.¹ See Product Description.
- UCARE polymers are primarily used to formulate hair and skin products because of their outstanding conditioning and deposition capabilities. See Product Uses.
- While these products are widely used in personal care products, exposure to the pure or concentrated polymer is minimal. Exposure is not expected to cause any adverse effects in view of the very low toxicity and irritant potential of UCARE polymers. See Exposure Potential.
- Excessive or prolonged exposure to pure or concentrated UCARE polymers may result in slight eye irritation, but corneal injury is unlikely. Prolonged skin contact may cause slight skin irritation with local redness, but absorption of harmful amounts or allergic reaction is unlikely. These materials are very low in toxicity and no harmful effects are anticipated from swallowing small amounts. No adverse effects are anticipated from single inhalation exposure to dusts of this product.² See Health Information.
- Some UCARE polymers are harmful to aquatic organisms and may cause long-term adverse effects in aquatic environments.³ See Environmental Information.
- UCARE™ polymer products are thermally stable at typical storage and use temperatures. Avoid storage at high temperatures or contact with oxidizing materials.⁴ See Physical Hazard Information.

**Manufacture of Product**
- **Capacity** – Amerchol Corporation (a subsidiary of The Dow Chemical Company) produces UCARE polymers in Greensburg, Louisiana, and in Xiaolan, People’s Republic of China.

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¹ Trademark of The Dow Chemical Company (“Dow”) or an affiliated company of Dow
Uses for UCARE Polymers

- Cleansing and Skin Care: 15%
- Shampoo and Hair Care: 85%

Product Description

UCARE polymers are cationic, multifunctional conditioning polymers. They are sold as white to off-white powder or granules that improve the ability to comb wet hair and enhance the appearance and feel of dry hair. UCARE polymers offer a variety of grades with a range of functionality. Their levels of viscosity, substantivity, and cationic substitution (indicated by the percent nitrogen on one polymer backbone) can be adapted to obtain the appropriate aesthetics and conditioning functionality for the target market segment.

Exposure Potential

Based on the uses for UCARE polymers, the public could be exposed through:

- Workplace exposure – Exposure can occur either in a UCARE polymers manufacturing facility or in the various formulation facilities that use these polymers. Those working with UCARE™ polymers in manufacturing operations could be exposed during maintenance, sampling, testing, or other procedures. Each manufacturing facility should have a thorough training program for employees, appropriate work processes and safety equipment in place to limit unnecessary exposure. See Health Information.

- Consumer exposure to products containing UCARE polymers – UCARE polymers are not sold for direct consumer use, but they are used as raw materials in personal-care product formulations. Typical use levels in personal care formulations are 0.2 to 0.5% UCARE polymers. See Health Information.

- Environmental releases – Because of their polymeric nature UCARE polymers are slow to biodegrade. In the European Union, this requires them to be classified as dangerous to the environment. However, this slow degradation will also occur in a standard waste water
treatment plant. Spilled material may also result in a slipping hazard, especially when wet. For small spills, these polymers should be absorbed with materials such as sand. If powder is dispersed in air, explosive mixtures can be formed. Do not permit dust to accumulate. Eliminate all sources of ignition immediately. See Environmental, Health, and Physical Hazard Information.

- **Large release** – Industrial spills or releases are infrequent and are generally contained. If a large spill does occur, the material should be swept or vacuumed up before it becomes wet. Washing with water, solvents, or most cleaning products will probably not be effective and may increase the hazard of slipping. High-pressure water blasting can be used to remove buildup of material. In case of fire, use of a positive-pressure, self-contained breathing apparatus (SCBA) with a full-face mask approved by NIOSH is recommended. Eliminate all sources of ignition. Use only explosion-proof equipment and ground and bond all containers and handling equipment. In case of fire, deny any unnecessary entry into the area. Follow emergency procedures carefully. See Environmental, Health, and Physical Hazard Information.

For more information, review the relevant Safety Data Sheet.

**Health Information**

Exposure to UCARE™ polymers may result in slight eye irritation, but corneal injury is unlikely. However, dust may cause eye irritation or corneal injury due to mechanical action. Prolonged skin contact with the products may cause slight skin irritation with local redness, but absorption of harmful amounts or allergic reaction is unlikely.

These materials are very low in toxicity and no harmful effects are anticipated from swallowing small amounts. No adverse effects are anticipated from single inhalation exposure to dust.

For more information, review the relevant Safety Data Sheet.

**Environmental Information**

UCARE polymers are expected to biodegrade very slowly. However, no bioconcentration is expected because of the relatively high molecular weight of the material. Some of these polymers are harmful to aquatic organisms and may cause long-term adverse effects in aquatic environments.

For more information, review the relevant Safety Data Sheet.

**Physical Hazard Information**

As organic solids, UCARE™ polymers will burn with about the same ease as sawdust. When dust is dispersed in air, explosive mixtures can be formed. However, these dusts are not usually hazardous with regards to explosibility. These products are thermally stable at typical storage and use temperatures. However, exposure to temperatures above 200°C (392°F) can cause the product to decompose. Avoid contact with oxidizing materials.

For more information, review the relevant Safety Data Sheet.
Regulatory Information

Regulations may exist that govern the manufacture, sale, transportation, use, and/or disposal of UCARE™ Polymers. These regulations may vary by city, state, country, or geographic region. Information may be found by consulting the relevant Safety Data Sheet, Technical Information or Answer Center.

Back to top

Additional Information

- Safety Data Sheet (http://www.dow.com/webapps/msds/msdssearch.asp)
- Answer Center (http://dow-answer.custhelp.com/cgi-bin/dow_answer.cfg/php/enduser/std_adp.php?p_faqid=1974&p_created=1088017749&p_sid=P5SoiDTI&p_accessibility=0&p_redact=&p_lva=&p_sp=cF9zcmNoPTEmcF9zb3J0X2J5PSZwX2dyaqWRzb3JOPSZwX3Jvd19ibnQ9MTQ4LDE0OCZwX3Byb2RzPTI2OCZwX2N)
- UCARE Polymers: Cationic Conditioners that Revitalize Hair and Skin, Amerchol Corporation (a subsidiary of The Dow Chemical Company), Form No. 324-00004-0902 AMS, September 2002 (http://www.dow.com/PublishedLiterature/dh_0048/0901b80380048858.pdf?filepath=amerchol/pdfs/noreg/324-00004.pdf&fromPage=GetDoc)
- UCARE Polymers Storage and Handling, Amerchol Corporation (a subsidiary of The Dow Chemical Company), Form No. 324-00204-0705 AMS, July 2005 (http://www.dow.com/PublishedLiterature/dh_005f/0901b8038005f6fa.pdf?filepath=amerchol/pdfs/noreg/324-00204.pdf&fromPage=GetDoc)

For more business information about UCARE polymers, visit Dow's Amerchol web site. (http://www.dow.com/ucc/amerchol/index.htm)

Back to top

References

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