

Carbopol® Ultrez 20 Polymer

INCI Name: Acrylates/C10-30 Alkyl Acrylate Crosspolymer

Quick Start Guide

INTRODUCTION

Carbopol® Ultrez 20 polymer is a self-wetting, rheology modifier designed to impart moderate-to-high viscosity as well as stabilizing and suspending properties to personal care applications.

Carbopol Ultrez 20 polymer is designed for surfactant-cleansing and electrolyte-containing formulations.

For further information, including several starting formulation concepts, please visit our website at: www.lubrizon.com/personalcare.

CHEMISTRY

Carbopol Ultrez 20 polymer is a patented, crosslinked acrylic acid copolymer with the following characteristics:

TYPICAL PROPERTIES	
Appearance	White powder
Salt Viscosity* (1% NaCl, mPa·s)	6,000
Mucilage Viscosity** (mPa·s)	54,000
Clarity** (% transmission)	>90
Wetting Time (3.0 wt%)	5 - 6 minutes
Dispersion Viscosity*** (mPa·s)	>3,500
*1% active polymer in water @ pH 7.3 - 7.8 **1% active polymer in water @ pH 5.8 - 6.3 ***3% active polymer, after 3 hours	

BENEFITS

- Rapid self-wetting polymer, that requires no dispersion agitation
- Stabilizes surfactant-containing formulations
- Stabilizes electrolyte-containing formulations
- Stabilizes and suspends insoluble ingredients
- Creates moderate-to-high viscosity products
- Exhibits good clarity for gel formulations
- Efficient, cost effective and easy-to-use

APPLICATIONS

- Shampoos
- Body washes
- Bath gels
- Lotions
- Gels
- Creams

PRODUCT CHARACTERISTICS

Carbopol Ultrez 20 polymer use level is dependent upon desired characteristics, including yield value and viscosity, as well as the nature and quantity of other formulation ingredients.

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For further information, please visit: www.lubrizon.com/personalcare

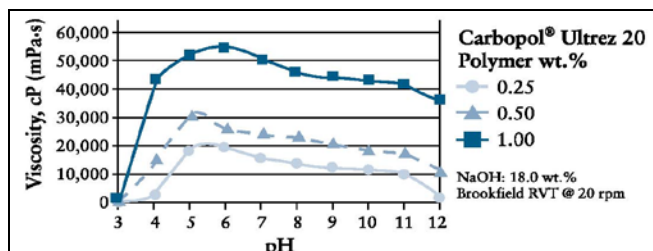
Carbopol Ultrez 20 polymer self-wets in minutes, without mixing.

CARBOPOL® POLYMER	WETTING TIMES	
	0.5 wt% (minutes) @ 25°C	3.0 wt% (minutes) @ 25°C
Ultrez 20	3	5
Ultrez 21	2 - 3	5
Ultrez 10	5	6
ETD 2020	20	>3 hours
980	>50	>5 hours

Note: The above values are typical, not specifications
0.5%: 2.5 g of powder sprinkled onto the surface of 500 mL DI water contained in a 800 mL beaker; 3.0%: 3.0 g of powder sprinkled onto the surface of 100 mL DI water contained in a 250 mL beaker

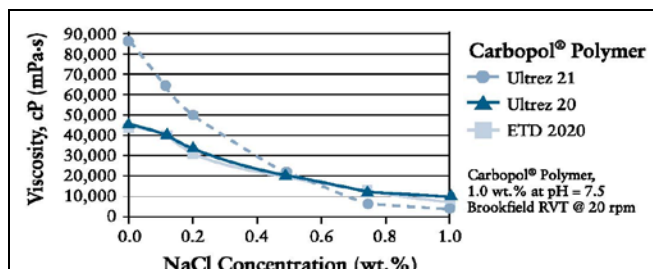
Carbopol Ultrez 20 polymer thickens effectively and maintains high performance across a broad pH range.

Effect of Polymer Concentration and pH on Viscosity – The graph below compares the effect of polymer concentration and pH on the viscosity of Carbopol Ultrez 20 polymer.



Carbopol Ultrez 20 polymer displays excellent electrolyte tolerance, making it the ideal choice for use in many personal care formulations.

NaCl Effect on Carbopol Ultrez 20 Polymer Gel Viscosity – The graph below shows the effect of NaCl on the viscosity of Carbopol Ultrez 20 polymer at 1.0 wt%.



HOW TO USE CARBOPOL ULTREZ 20 POLYMER

Processing Guidelines

- Sprinkle polymer on surface of water and allow to self-wet (vigorous agitation produces foam)
- Gently begin agitation
- Carbopol Ultrez 20 polymer can be pre- or post-neutralized (depending on application)
- Keep agitation to a minimum (to avoid air entrapment) while adding remaining ingredients to formulation
- Add typical preservatives

Special Processing Note: Some producers choose to make a stock dispersion of Carbopol Ultrez 20 polymer in water and then add this dispersion to their formulation mix tank. Unlike traditional Carbopol polymers, Carbopol Ultrez 20 polymer can be dispersed at concentrations up to 6.0 wt% and still remain pumpable.

Order of Addition

To ensure maximum benefit and efficiency from the polymer, we recommend the following order of addition as a general guideline:

1. Add Carbopol Ultrez 20 polymer to deionized water.
2. Add primary surfactants with gentle mixing.
3. Neutralize to pH 4.5 -5.0.*
4. Add specialty surfactants (amphoterics, etc.).
5. Add UV absorber, EDTA, silicone, cationics, salts, etc.
6. Add pearling ingredients such as mica, EGDS or EGMS.
7. Add fragrance, dye and preservative.
8. Adjust final pH (if necessary).

*For surfactant applications that do not require clarity, partial neutralization is not required, and step 3 may be omitted.

FORMULATIONS AVAILABLE

- CL-B0012 Clear Bath Gel with Microcapsules
- SH-0022 2-in-1 Shampoo with Botanicals
- CL-B0013 Honey and Almond Body Wash
- S-G0026 Conditioning Styling Gel with Cetrimonium Chloride
- E-0011 Hair Revitalizer: Leave-in Treatment for Ethnic Hair
- F-0042 Damage Control Lotion

HANDLING AND STORAGE

Packaging: 20 kg cardboard boxes
Shelf-Life: 2 years

Consult the Carbopol Ultrez 20 polymer MSDS for additional pertinent information.

ADDITIONAL INFORMATION

- The Harmonized Tariff System (Schedule B) number for Carbopol Ultrez 20 polymer is 3906.90.6000
- INCI name for Japan is available upon request

ADDITIONAL LITERATURE

Please visit www.lubrizol.com/personalcare for more information:

- Temporary Product Specifications
- Test Procedures
- Material Safety Data Sheet (MSDS)
- Toxicological Summary
- Certificate of Compliance