



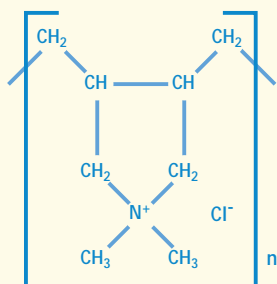
## PRODUCT RANGE

# POLYQUAT

## Characteristics of the product

Polyquat is a cationic polyelectrolyte with a medium-high molecular mass, a high electric charge density, and a variant viscosity in aqueous solution (20-40%).

Formula:



**Density:** 1,03-1,15 g/cm<sup>3</sup>

**pH value:** 7,0-8,5

2,5-3,5\* only textile industry

**Molecularweight:** 3.000-100.000

**Sodium chloride:** < 2,0%

**Monomer:** < 5,0%

Cosmetic (Polyquaternium – 6)

< 1%

**Viscosity:** 150-5.000 mPas

## Toxicology

Polyquat is non-poisonous and relatively nondangerous to warm-blooded animals (LD<sub>50</sub> 5.000 p.o. rat, LD<sub>50</sub> dermal 10.000 rat). It is to be classified as a harmful substance to water "water hazard class 2":

Fish toxicity group C (LC<sub>50</sub> 1,9 ppm)

Alga toxicity group D resp. E (50% 1,7 ppm)

In the 90-day test a no-effect-level of 15 mg/kg/d was measured.

The mutagenic test (Ames test) was negative.

Polyquat causes acute faint irritation of the mucous membran of a rabbits eye.

## Analytical Chemistry

The polymer content is analytically determined by combining H-NMR spectrometry and argentometric Cl<sup>-</sup> as well as flame-photometric Na<sup>+</sup> determinations.

The mean molar mass is determined by recording the relative solution viscosity of measuring series of differently concentrated Polyquat solutions (dilution series).

It is possible to ascertain the residual monomer content by combining H-NMR spectrometry and gravimetry (precipitating the polymers with acetone).

Residues in water up to 10 ppm can be determined by indirect titration with cetyl-trimethyl ammonium bromide.

## POLYQUAT 20U 050

Polyquat 20 U 050 is a 20% aqueous solution of poly-dimethyldiallylammonium chloride with various viscosities.

## Properties

**Appearance:** opalescent, yellow liquid

**Character:** cationic-active

**Density:** 1,03-1,05 g/cm<sup>3</sup>

**Solubility in water:** mixable in any ratio

**pH value:** 7,0-8,5

**Polymer content:** 20 ± 2%

**Sodium chloride:** < 1,0%

## Supply form

Aqueous solution

**Container:** 100-litre and 200-litre polyethylene barrels  
1.000-litre polyethylene container, UN approved  
Trailer tank  
Isotank container

## Storage stability

Polyquat 20 U 050 may freeze below 0°C, but this does not impair its quality and once it has melted and homogenized, either by 10 min. stirring or bubbling with compressed air, it can be used again without restriction.

Storage life in sealed containers: at least one year

## POLYQUAT 70 AC 30

Polyquat 70 AC 30 is an aqueous solution of poly-dimethyldiallylammonium chloride and a salt of metal.

## Properties

**Appearance:** opalescent, yellow liquid

**Character:** cationic-active

**Density:** 1,0-1,2 g/cm<sup>3</sup>

**Solubility in water:** mixable in any ratio

**pH value:** 3,0-4,5

**Content:** 27 ± 2%

## Supply form

Aqueous solution

**Container:** 100-litre and 200-litre polyethylene barrels  
1.000-litre polyethylene container, UN approved  
Trailer tank  
Isotank container

## Storage stability

Polyquat 70 AC 30 may freeze below 0°C, but this does not impair its quality and once it has melted and homogenized, either by 10 min. stirring or bubbling with compressed air, it can be used again without restriction.

Storage life in sealed containers: at least one year

## Applications

Separation of oil-water emulsions

Cooling lubricants based on oil-water emulsions are used in almost all mechanical metal-processing techniques. The

effectiveness of these cooling lubricants deteriorates as a result of being used up, autoxidation, and infestation with micro organisms. They must therefore be periodically replaced and the used emulsion must be disposed without harming the environment. One technique which can be used is known as emulsion separation.

The polymer separation technique using Polyquat 20 U 050 /70 AC 30 is based on the reaction of anionic emulsifying agents with the cationic-active polymers. The emulsion becomes unstable and the oil phase floats on top of the water phase, allowing the two layers to be easily separated.

The amount of separating agent required must be determined for each case using preliminary experiments as it varies depending on the type of emulsion and the quantities of oil and emulsifying agents contained therein. Approximately 1-2 litres of Polyquat 20 U 050/70 AC 30 are sufficient to separate 1,000 litres of used emulsion.

Adding too much separating agent leads to poorer separation results. However, if the correct quantity is used, the separating agent completely combines with the emulsifying agent components, and after phase separation, remains in the oil phase.

Furthermore, Polyquat 20 U 050 can also be used as:

A polymer silicate to seal the base, walls, and cover of rubbish dumps containing pollutants, and to fill bore holes

An auxiliary agent for the paper industry (retention agent, dewatering accelerator, impurity eliminator)

An auxiliary agent for dyeing works in the textile industry

An auxiliary agent for sludge dewatering

A general coagulant

## Safety informations

When used properly, Polyquat 20 U 050/70 AC 30 does not pose a health risk. Any part of the skin which comes into contact with Polyquat 20 U 050 /70 AC 30 should be washed under running water. If any Polyquat 20 U 050 enters the eye, rinse the eye with plenty of water and consult a doctor. Should any Polyquat 20 U 050/70 AC 30 be swallowed, drink plenty of liquid, induce vomiting, and see a doctor.

## POLYQUAT 30 U 200

Polyquat 30 U 200 is a 30% aqueous solution of polydimethyldiallylammonium chloride.

### Properties

**Appearance:** clear-to-opalescent, yellow liquid

**Character:** cationic-active

**Density:** 1,05-1,07 g/cm<sup>3</sup>

**Solubility in water:** mixable in any ratio

**pH value:** 6,5-8,5

**Polymer content:** 30 ± 2%

**Sodium chloride:** < 1,0%

### Supply form

Aqueous solution

Container: 100-litre and 200-litre polyethylene barrels  
1.000-litre polyethylene container, UN approved  
Trailer tank  
Isotank container

### Storage stability

Polyquat 30 U 200 may freeze at temperatures below -5°C, but this does not impair its quality and once it has melted and homogenized, either by 10 min. stirring or bubbling with compressed air, it can be used again without restriction. Storage life in sealed containers: at least one year

### Applications

Polyquat 30 U 200 is a special polymer to use in pulp and paper industry.

The utilization of Polyquat 30 U 200 in manufacturing of paper is as an agent for reduction of loading and for the elimination of impurities.

### Safety informations

When used properly, Polyquat 30 U 200 does not pose a health risk. Any part of the skin which comes into contact with Polyquat 30 U 200 should be washed under running water.

If any Polyquat 30 U 200 enters the eye, rinse the eye with plenty of water and consult a doctor. Should any Polyquat 30 U 200 be swallowed, drink plenty of liquid, induce vomiting, and see a doctor.

## POLYQUAT 40

Polyquat 40 is a 40% aqueous solution of polydimethyldiallylammonium chloride with various viscosities.

### Properties

**Appearance:** clear-to-opalescent, yellow liquid

**Character:** cationic-active

**Density:** 1,05-1,1 g/cm<sup>3</sup>

**Solubility in water:** mixable in any ratio

**pH value:** 7,0-8,5

2,5-3,5 (only PQ 40 U 05)

**Polymer content:** 40 ± 2%

**Sodium chloride:** < 1,0%

## Supply form

Aqueous solution

Container: 100-litre and 200-litre polyethylene barrels  
1.000-litre polyethylene container, UN approved  
Trailer tank  
Isotank container

## Storage stability

Polyquat 40 may freeze at temperatures below -5°C, but this does not impair its quality and once it has melted and homogenized, either by 10 min. stirring or bubbling with compressed air, it can be used again without restriction. Storage life in sealed containers: at least one year

## Types of Polyquat 40

name	viscosity mPas 25°C	molecular weight
PQ 40 U 05 NV	50-150	3.000-5.000
PQ 40 U 05	200-400	8.000-10.000
PQ 40 U 10	500-1500	10.000-15.000
PQ 40 U 50 A	1.500-3.000	20.000-25.000
PQ 40 U 50	2.500-5.000	25.00-30.000

## Applications

Use in modified emulsion to seal rubbish dumps containing pollutants

Use in the oil and natural gas industry:

Additives for cosmetics (hair conditioner)

Auxiliary agent for the textile industry (dye fixing, co-fixer for direct dyes)

Auxiliary agent for paper production

## Safety informations

When used properly, Polyquat 40 does not pose a health risk. Any part of the skin which comes into contact with Polyquat 40 should be washed under running water. If any Polyquat 40 enters the eye, rinse the eye with plenty of water and consult a doctor. Should any Polyquat 40 be swallowed, drink plenty of liquid, induce vomiting, and see a doctor.

## POLYQUAT 1440

Polyquat 1440 is an algacide for preventive use in small swimming pools, paddling pools and ornamental ponds etc. (but not fish-ponds). In addition to its algae control function, it coagulates suspended impurities and also acts to a certain degree as a disinfectant.

## Supply form

Bulk product (may be packaged in whichever size required).

## Storage stability

Polyquat 1440 may freeze below 0°C, but this does not impair its quality, and once it has melted it can be used again without restriction.

Storage life in sealed containers: at least one year

## Usage

Before the pool etc. is refilled, it should be thoroughly cleaned and sprayed using a strong jet of water in order to remove algae and any other impurities present which might affect the effectiveness of the Polyquat 1440.

When filling the pool, the amount of Polyquat 1440 required should be added near the water inflow in order that the Polyquat 1440 be distributed as evenly as possible.

The concentration needed for algae control is about 25-50 ml/m<sup>3</sup> and mainly depends on pool usage, the amount of dust which it collects, and the conditions governing the growth of the algae. When adding Polyquat 1440, it is helpful to first mix the amount required in a bucket etc. with water and then add this solution to the pool water. Whenever the water is 'topped up' to make up for losses caused by evaporation, splashing etc., a corresponding amount of Polyquat 1440 (25-50 ml/m<sup>3</sup>) must be added. Coagulated impurities must be removed by suction or otherwise from the bottom of the pool as soon as possible.

## Additional information

Water which has a higher concentration of impurities, metallic salts, humic compounds or which is otherwise dirty must be pretreated by precipitation and/or filtering before using Polyquat 1440

As Polyquat 1440 is poisonous for fish, water treated with Polyquat 1440 must not be allowed into fish-ponds etc. However, it may be safely used to water plants and lawns.

Water containing Polyquat 1440 may be safely disposed of by simply pouring it into the sewer network etc.

Following the instructions correctly will produce an algacide effect lasting 4-8 weeks.

## Safety informations

When used properly, Polyquat 1440 does not pose a health risk. Any part of the skin which comes into contact with Polyquat 1440 should be washed under running water. If any Polyquat 1440 enters the eye, rinse the eye with plenty of water and consult a doctor. Should any Polyquat 1440 be swallowed, drink plenty of liquid, induce vomiting, and see a doctor. Keep chemicals safely out of the reach of children!

All information given above is to our best knowledge. A guarantee for the field application cannot be given, as the precise circumstances are out of our control.

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