



## Technical Data Sheet

## ICC-E/O, P/O Copolymer Products

**Trade Name:** Copolymer 20-101

**Chemical Name:** Block Copolymer EO-PO

**Grade:** Chemical

### Low Foaming Surfactants

#### Block Copolymer EO-PO

I.C.C manufactures a wide range of low foaming surfactants designed to provide the appropriate functionality for all of our customers application needs. We help you to get your foam under control. Alkyl based EO-PO block copolymers typically have lower surface tensions, CMC and greater dispersing power compared to the corresponding simple alkyl ethoxylates.

The propylene oxide block acts as a branched residue within the copolymers leading to performance advantages like better solubilization and emulsification properties.

#### Advantages of Block Copolymer EO-PO

- Variable product forms
- Perfect foam control
- Chemical and thermal stability
- Suitable for acidic formulations
- Very good cost-efficiency
- Environmentally compatible
- Excellent wetting properties

#### APPLICATION

Low-foaming EO-PO copolymers can be used in various solvent or water-based formulation types e.g., like Emulsifiable concentrate (EC)

Oil-in-water emulsion (EW)

Suspo-emulsion (SE)

Soluble concentrate (SL)

Suspension concentrates (SC).

EO-PO copolymers act as emulsion stabilizers, Wetting agent, penetration enhancers or dispersing agents. Whenever the wetting properties of your formulations need to be improved without causing increased foam formation alkyl-substituted EO-PO derivatives could be the right choice. Due to their different molecular weights and structures these types of surfactants are not necessarily enhancing the penetration through the leaf surface, which makes them suitable e.g., for the use with contact pesticides.

TEST	STANDARD TEST METHOD	RESULT
Appearance at 20°C	—	colorless liquid
Color at 50 °C, APHA	ASTM D-1209	Max. 25
Average molecular weight, g/mol	Calculated	500-1000
pH (5% in water)	ASTM D-1172	5-7
Cloud point, °C (1% in Water)	ASTM D-2024	37±3
Density at 25°C, g/ml	ASTM D-1298	0.98±0.02
Hydroxyl value, mg KOH/g	ASTM D-4252	25-30
HLB, calculated	Calculated	11
Water, percent	—	—
Polyethylene glycol, percent	—	—
Viscosity at 25°C, cP	ASTM D-445	56±5

Alkyl alkoxyates and EO-PO copolymers like copolymer 20-101, 20-102 and 20-103, 40-101, ... showing fast cold-water solubility provides advantages especially in water-based formulations (SL, SC, SE). More hydrophobic copolymers like copolymer 20-101, ... are used as emulsifiers in solvent or oil-based systems (EC, EW).

#### STORAGE AND HANDLING

Copolymer 20-101 is dispatched in polyethylene or corrugated steel, galvanized or carbon steel drums. Copolymer 20-101 is stable for 2 years when stored in the original sealed containers in a cool and dry place.

#### Precautions for safe handling

Avoid contact with skin and eyes. Avoid formation of dust and aerosols.

Provide appropriate exhaust ventilation at places where dust is formed. Normal measures for preventive fire protection.

#### Conditions for safe storage

Keep container tightly closed in a dry and well-ventilated place.

#### Potential Health Effects

**Inhalation** May be harmful if inhaled. May cause respiratory tract irritation.

**Skin** May be harmful if absorbed through skin. May cause skin irritation.

**Eyes** May cause eye irritation.

**Ingestion** May be harmful if swallowed.