

**PRODUCT INFORMATION**

# WARADUR® GE

## Product Description

WARADUR® GE is a glycerol ester wax of montanic acids and exhibits a slightly higher molecular weight as WARADUR® E. Montanic acids are straight-chained monocarboxylic acids with a chain length in the range of C28 – C32. The corresponding glycerol esters exhibit chain length in the range of approx. C60 avg. and provide this wax with a low volatility, good thermostability and low migration rates.

## General Advantages

High effectiveness at low concentrations: WARADUR® GE is extremely versatile and suitable for a wide range of plastics applications as a multi-purpose additive, e.g. release agent, flow improver, dispersing agent, gloss booster, surface improver. WARADUR® GE is suitable for engineering plastics, thermosets, PVC, etc.

## Examples of Use

- Thermoplastics: PA, PBT, TPE, PC, PVC, styrenics
- Thermosets: epoxy resins, phenolic resins, polyurethane
- Dispersing agents for colour masterbatches and filled plastics (talc, glass fibre)

## Delivery Specifications \*

Characteristics	Unit	Target value	Method
Acid value *	mg KOH/g	13 – 30	ISO 2114
Saponification value *	mg KOH/g	130 – 165	ISO 3681
Drop point *	°C	80 – 88	ASTM 3954
Colour	–	pale yellow	AA 3.2.1.505
Viscosity @ 120 °C	mPas	15 – 30	AA 3.2.1.520
Density	g/cm <sup>3</sup>	1.00 – 1.02	Ph. Eur. 2.2.5

## Packaging and Handling

Physical form	Flakes or powder
Packaging	Paper bag or Big Bag
Storage	Store at ambient temperature on a dry place. Protect from heat/overheating and direct sunlight. The minimum remaining period is 1.5 years and is defined as the minimum shelf life at the customer. Thereafter, tests of the chemical characteristics are recommended. The maximum shelf life of 5 years is indicated.

## Safety

### WARADUR® GE

- is made from a fossil biological source
- based on data from similar montan ester waxes: expected to reach the criteria for inherent biodegradability (OECD Guideline 301 D, Closed Bottle Test)
- is not classified as carcinogenic, mutagenic or reprotoxic; no health or environmental hazards are known, provided it is applied in industrial and professional settings

## Delivery Time and Availability

Standard delivery time: 2 – 3 weeks. Preconditions can be met for achieving shorter delivery times on standard products when demanded by the market.

## Legislation

### Food contact legislation:

- FDA 175.105 Adhesives ("montan wax")
- FDA 177.2600 Rubber articles intended for repeated use ("montan wax")
- Commission Regulation (EU) No 10/2011 of 14 January 2011 on plastic materials and articles intended to come into contact with food

### Other legislation:

- REACH, RoHS and CONEG compliant
- Listed in all relevant National Inventories

For further information, please contact [application@voelpker.com](mailto:application@voelpker.com).