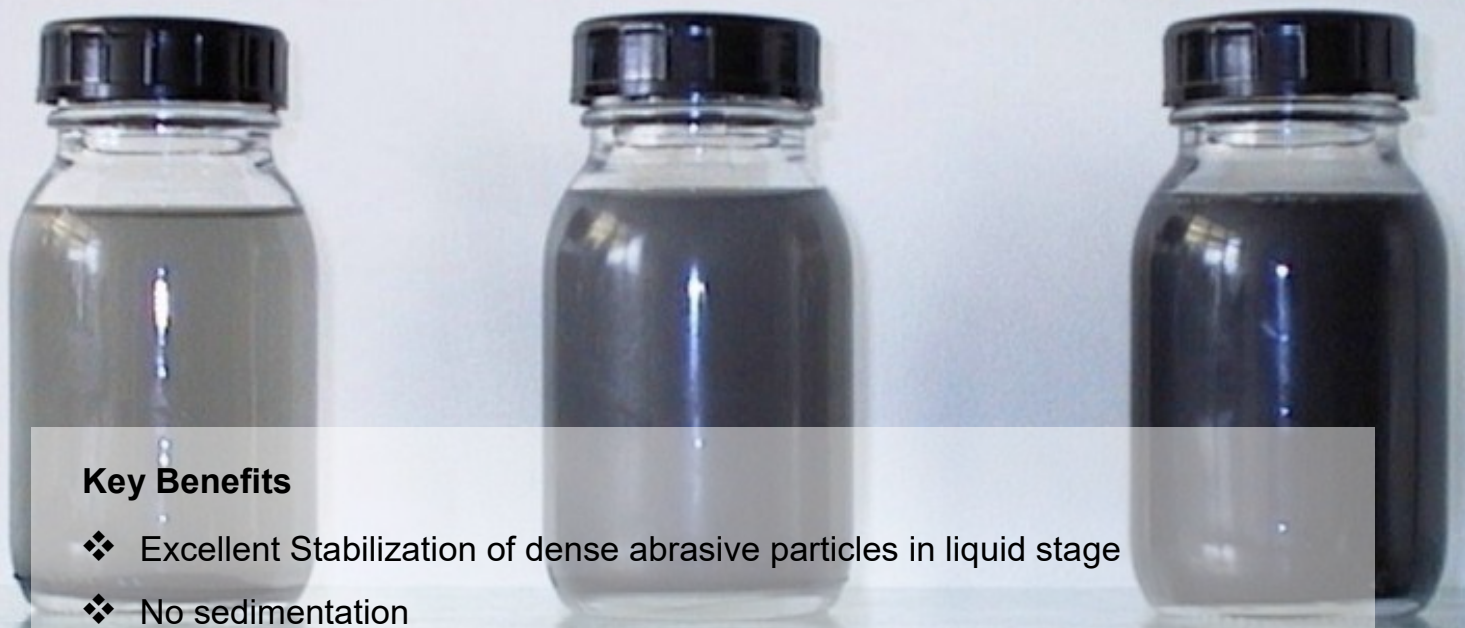


RHEOLATE[®] 1 and RHEOLATE[®] 2001

Stabilization of aqueous abrasive slurries



Key Benefits

- ❖ Excellent Stabilization of dense abrasive particles in liquid stage
- ❖ No sedimentation

Overview

In liquid and pasty abrasive compounds rheological additives are required to suspend abrasive powders such as diamond powder or selected covalent carbides homogeneously and to prevent settling and syneresis.

The described abrasive slurries are being used in various industries, e.g. the electronic industry.

Products

RHEOLATE[®] 1 is an alkali swellable vinyl acrylic copolymer with a solids content of 30%.

RHEOLATE[®] 2001 is an aqueous anti settling agent with 24% active substance which is based on a proprietary copolymer.

Test results

In a commercially available formulation of an abrasive paste RHEOLATE[®] 1 and RHEOLATE[®] 2001 have been tested as antissettling agents, in this case for boron carbide.

Sample	Visual assessment of suspension (after 2 weeks storage at ambient conditions)
blank (no rheology modifier)	Almost complete settling of particles, slight milk grey liquid layer on top of settlement
3.2% RHEOLATE [®] 1	Strong sedimentation; grey milky layer on top
3.2% RHEOLATE [®] 1 0.8% RHEOLATE [®] 2001	No sedimentation; no phase separation

Table 1: Results sedimentation tests

The above described becomes even more obvious in case watching the sample as displayed in *Figure 1*.

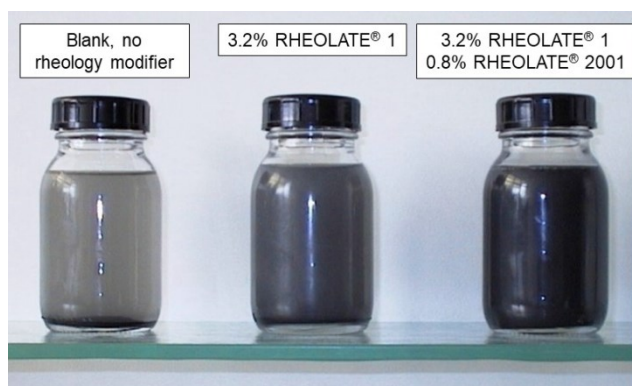


Figure 1: Samples sedimentation tests

Conclusion

A combination of 3.2% RHEOLATE[®] 1 and 0.8% RHEOLATE[®] 2001 reach optimal suspension and stabilisation of abrasive powders. RHEOLATE[®] 1 alone could not achieve sufficient stabilisation of the particles. There was nearly no viscosity increase observed.

Test formulation

Component	Concentration [%]
Water	89 - X
Solvents (e.g. glycols)	8
Abrasive powder (e.g. boron carbide or diamond powder)	3
Rheology modifier	X
Total	100

Table 1: Formulation abrasive slurry

Preparation of samples:

1. Add abrasive powder under stirring into water
2. Disperse for 10 minutes
3. Add rheological additives under stirring and homogenise.
4. Adjust pH to approximately 8-9.

The pH of approximately 8 – 9 is necessary to activate RHEOLATE[®] 1 polyacrylic thickener

Please contact for technical support:

EMEIA: Techsupport_EMEIA@elementis.com
ASIA: Techsupport_Asia@elementis.com
Americas: Techsupport_Americas@elementis.com

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North America

Elementis
469 Old Trenton Road
East Windsor,
NJ 08512, USA
Tel:+1 609 443 2500
Fax:+1 609 443 2422

Europe

Elementis UK Ltd.
c/o Elementis GmbH
Stolberger Strasse 370
50933 Cologne, Germany
Tel:+49 221 2923 2066
Fax:+49 221 2923 2011

Asia

Deuchem (Shanghai) Chemical Co., Ltd.
99, Lianyang Road
Songjiang Industrial Zone
Shanghai, China 201613
Tel:+86 21 5774 0348
Fax:+86 21 5774 3563