

FACT SHEET

Manganese(IV) Oxide Curing Agents for Polysulphide Sealants

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Introduction:

Manganese(IV) oxide (MnO_2) technology is widely used as a curing agent for polysulphide sealants that are applied to insulating glass units, aircraft and numerous construction projects e.g. buildings, roads, airports & chemical plants.

Function:

Activated manganese(IV) oxide functions as an oxidizing agent to cure the polysulphide resins, by producing disulphide linkages:



It plays a crucial role in the formulation, application and end property development of the polysulphide sealant. Tailoring the chemical and physical parameters of manganese(IV) oxide enables the key formulation, application and performance properties of the sealant to be modified to fit the specific requirements of the end use application.

Benefits:

Honeywell utilizes highly specific production and process conditions to manufacture activated manganese(IV) oxide. All of our product grades offer the following fundamental benefits to formulators of polysulphide sealants:

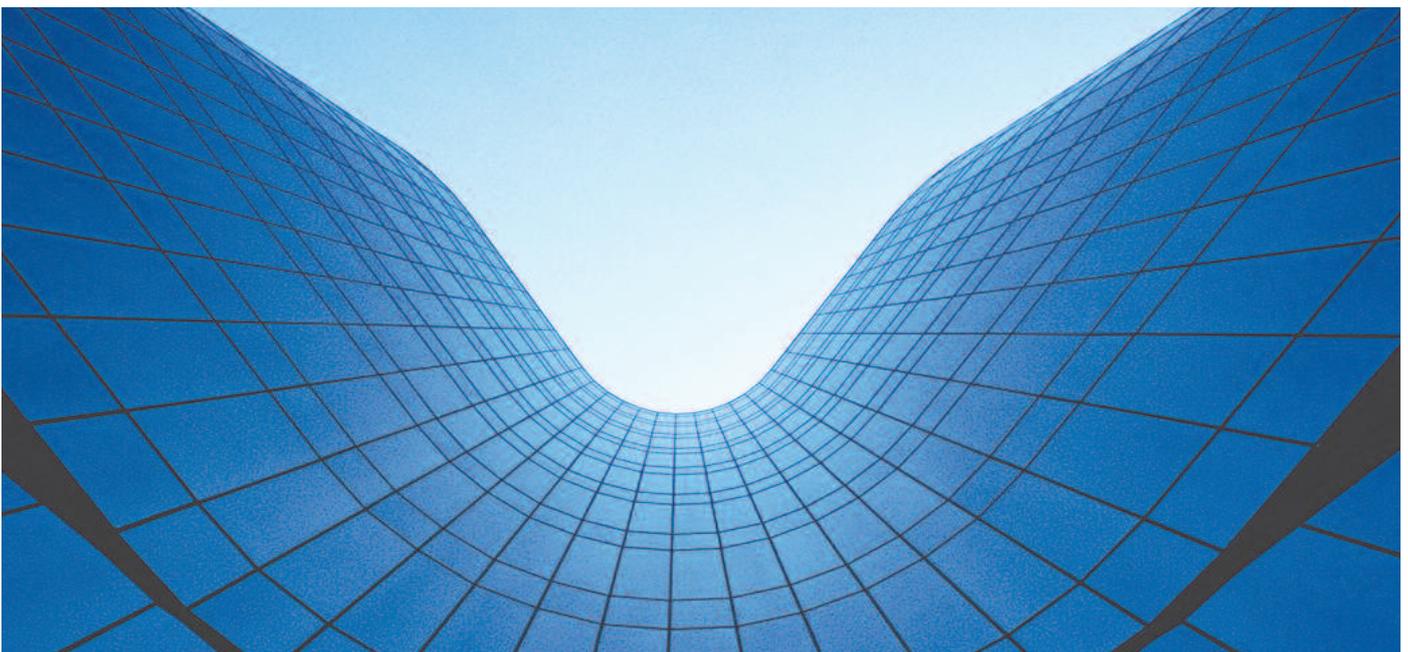
- Fine & consistent particle size distribution leading to high processing efficiency of curing paste manufacture
- A high assay of MnO_2
- Excellent storage stability of curing paste
- Consistency of performance in sealant formulation

Products:

Honeywell manufactures a comprehensive range of activated manganese(IV) oxide grades to meet the needs of polysulphide sealant formulators across a number of markets.

These materials are manufactured at Honeywell's plant in Seelze (Germany), which is certified against ISO/TS 16949, ISO 9001 and ISO 14001. They are marketed under the brandname Riedel-de Haën®.

Honeywell's Manganese(IV) oxide (MnO_2) technology is part of the Specialty Materials business, a \$4.5 billion, global leader in providing customers with high-performance specialty materials, including fluorine products; specialty films and additives; advanced fibers and composites; intermediates; specialty chemicals; electronic materials and chemicals; and technologies and materials for petroleum refining. The business is based in Morristown, New Jersey (USA).

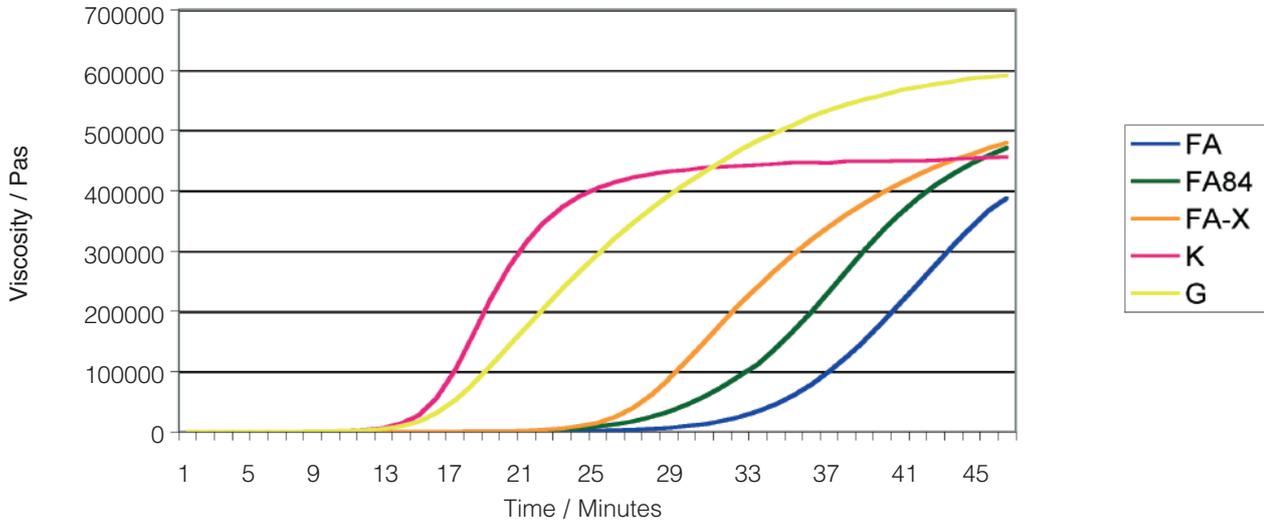


Products	Insulating Glass	Construction	Aerospace	Benefit
FA	●	●	●	<p>Excellent hardening efficiency</p> <p>Fast through cure of sealant combined with desirable open time</p> <p>Very good UV & weathering properties, chemical resistance, swelling behaviour and adhesion</p>
FA-X	●	●	●	<p>Excellent hardening efficiency</p> <p>Fast through cure of sealant combined with desirable open time</p> <p>Very good UV & weathering properties, swelling behaviour and adhesion</p> <p>Low viscosity of curing paste</p>
FA 84	●			<p>Excellent hardening efficiency</p> <p>Fast through cure of sealant combined with desirable open time</p> <p>Very good UV and weathering properties and adhesion</p> <p>Superior swelling behaviour</p> <p>Low viscosity of curing paste</p>
K	●	●		<p>Fast pot-life and fast initial cure speed</p> <p>Fast hardness development</p>
G		●		<p>Developed for construction sealants</p> <p>Fast pot-life and fast initial cure speed</p> <p>Cure profile especially suitable for construction sealants</p> <p>Very good chemical resistance, weathering properties and adhesion</p> <p>Superior swelling behaviour</p>

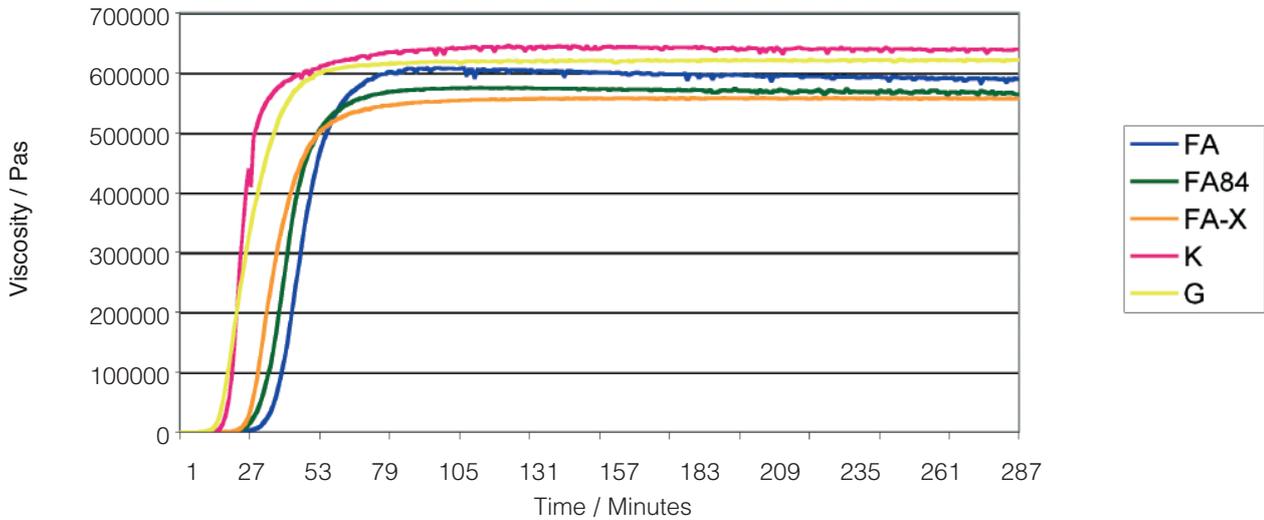


Property Comparison of Manganese(IV) Oxide Grades

Pot-Life / Initial Curing Speed



Pot-Life and Hardness Development



Formulation Viscosity

Decreasing Viscosity →



Swelling Behaviour

Improving Swelling Behaviour →



Alkalinity

Decreasing Alkalinity →



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Printed in Germany
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