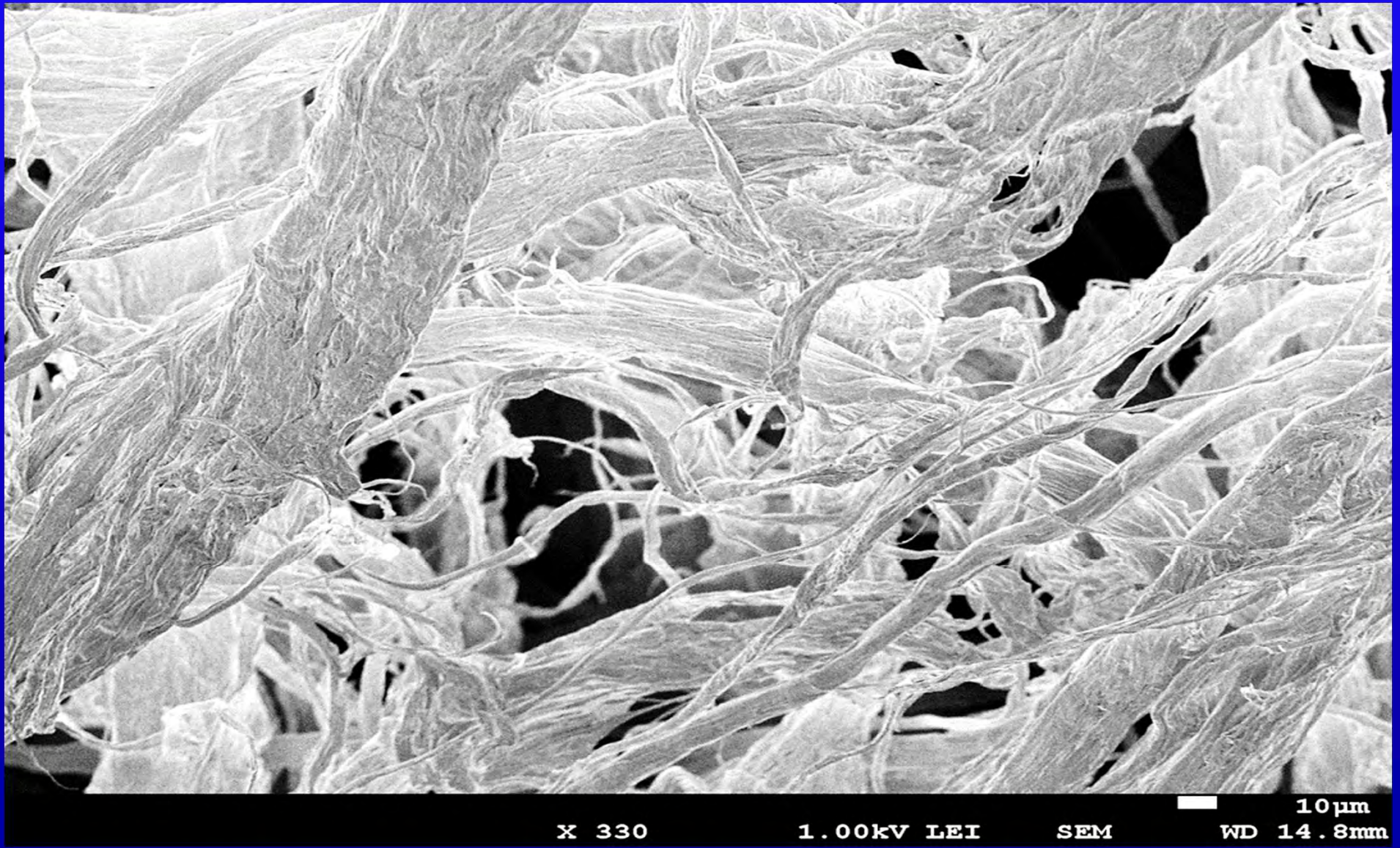


Short Stuff®

**An Alternative to
Fumed Silica for Rheology
in Epoxy & Silicone Resin
Systems**

MINIFIBERS, INC.

Short Stuff®



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Fumed Silica Replacement

Fumed silica brings nuisance dust issues

Short Stuff[®] is non dusting and much easier to handle, and improves working conditions.

Economics

Short Stuff[®] is price competitive vs fumed silica, and may provide equal rheology at up to **50%** less by weight in Epoxy systems.

Consistency

Short Stuff[®] works physically to impart rheology, so performance variation in different resins is reduced.

Predictable Rheology

Short Stuff[®] provides consistent, reproducible rheology without the fluctuation often observed with fumed silica.

Product Packaging

Short Stuff[®] is available in 15 lb. paper bags, and a shipment contains significantly more product than fumed silica.

What Do I Need To Know?

Does the application currently use Hydrophobic or Hydrophilic Fumed Silica?

Treated Fumed Silica is Hydrophobic

Un-Treated Short Stuff® is Hydrophobic.

What are the Gloss or Sheen requirements?

Short Stuff® may reduce the gloss/sheen if a larger grade is used.

What is the applied film thickness?

Short Stuff® is limited to wet film thickness of 3+ mils to prevent texture or visible fibrils in the dry film.

Is Film Clarity a Requirement?

Short Stuff® remains opaque after dispersion.

What Do I Need To Know?

Where should I add Short Stuff® in a 2k Epoxy System?

Add to Part A for medium to high viscosity Epoxy systems.

Add to Part B for low viscosity Epoxy systems.

Short Stuff® can be post added under sheer on the job site.

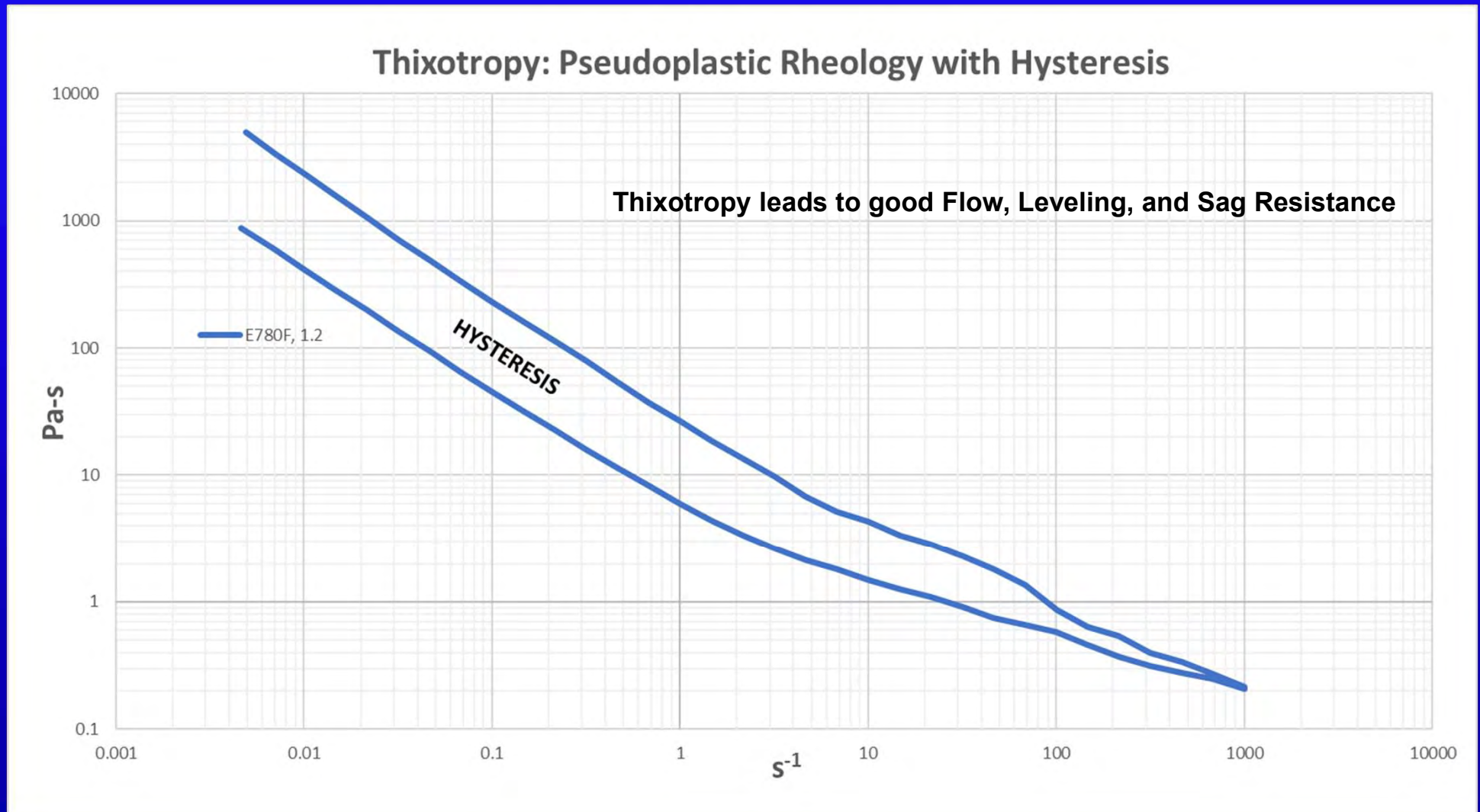
How should I add the Short Stuff® ?

Short Stuff® is very sheer stable, and can be added under high sheer with a Cowles blade, in a media mill, or with an in line roto-stator mixer.

Does Short Stuff® require special application methods?

Formulas containing Short Stuff® can be applied by brush, roll, or spray

The Rheology of Short Stuff[®]



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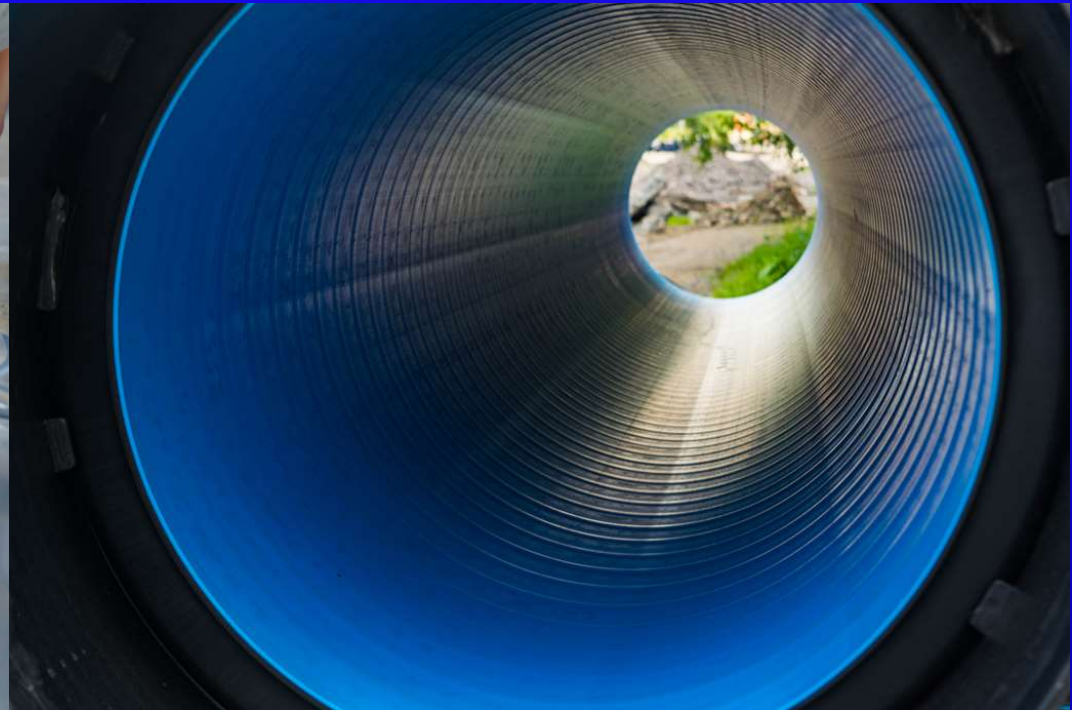
Range of Sizes

SHORT STUFF® Highly Fibrillated HDPE

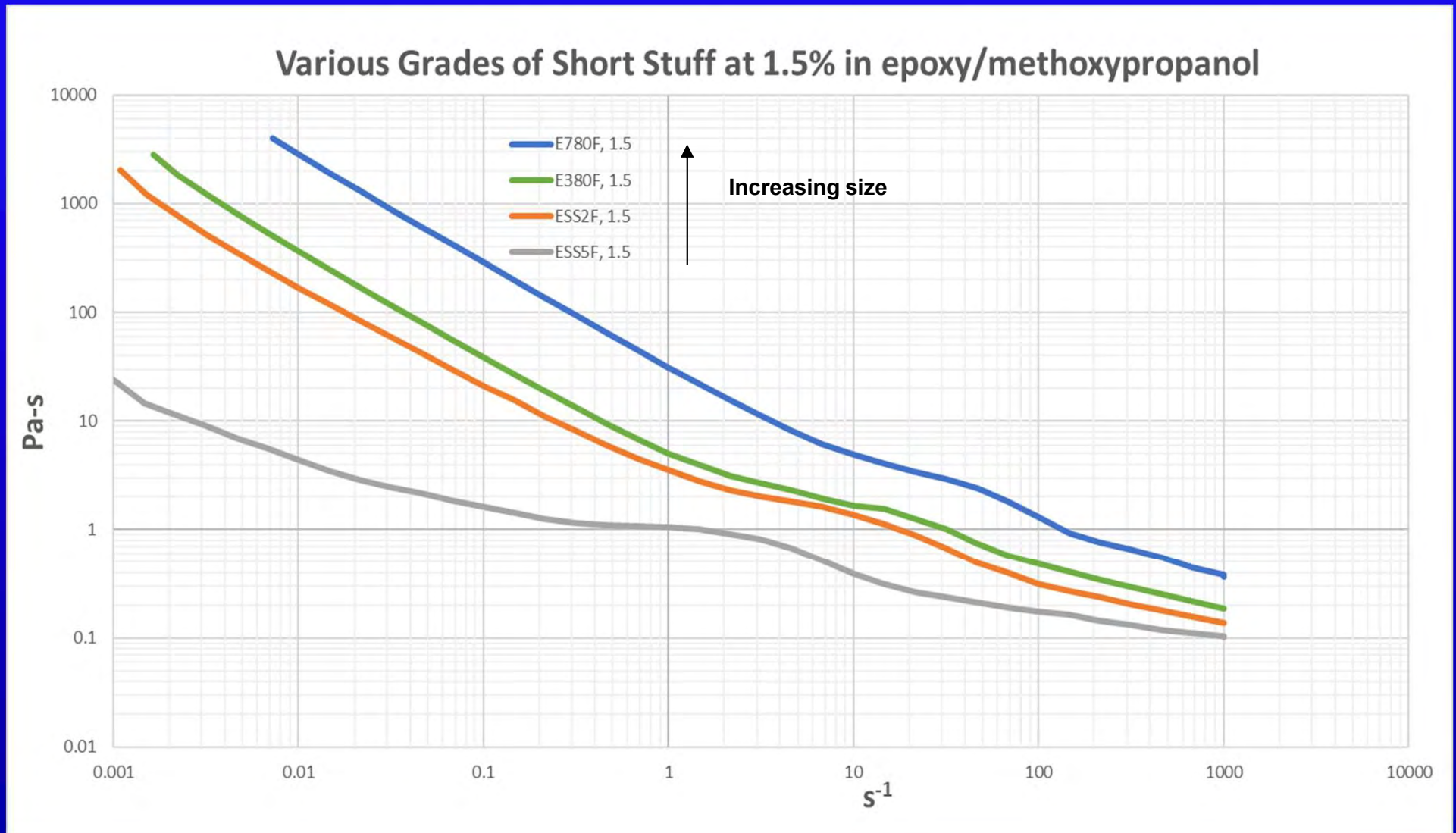
GRADE	ESS5F	* ESS50F	ESS2F	* ESS20F	E380F	* E505F	E620F	E780F	E990F
Average Length (mm)	~0.1	~0.1	~0.6	~0.6	~0.5	~0.6	~0.65	~0.9	~1.0
Diameter (microns)	5	5	5	5	15	15	15	25	20
Surface Area (m ² /gm) Measured by gas absorption	12	12	12	12	8	8	8	8	8
Melting Point	~135°C / ~275°F								
Moisture Content (%)	<2.0								
Specific Gravity (g/cm ³)	0.96								

* For improved dispersion in aqueous systems.

Short Stuff® in Epoxy

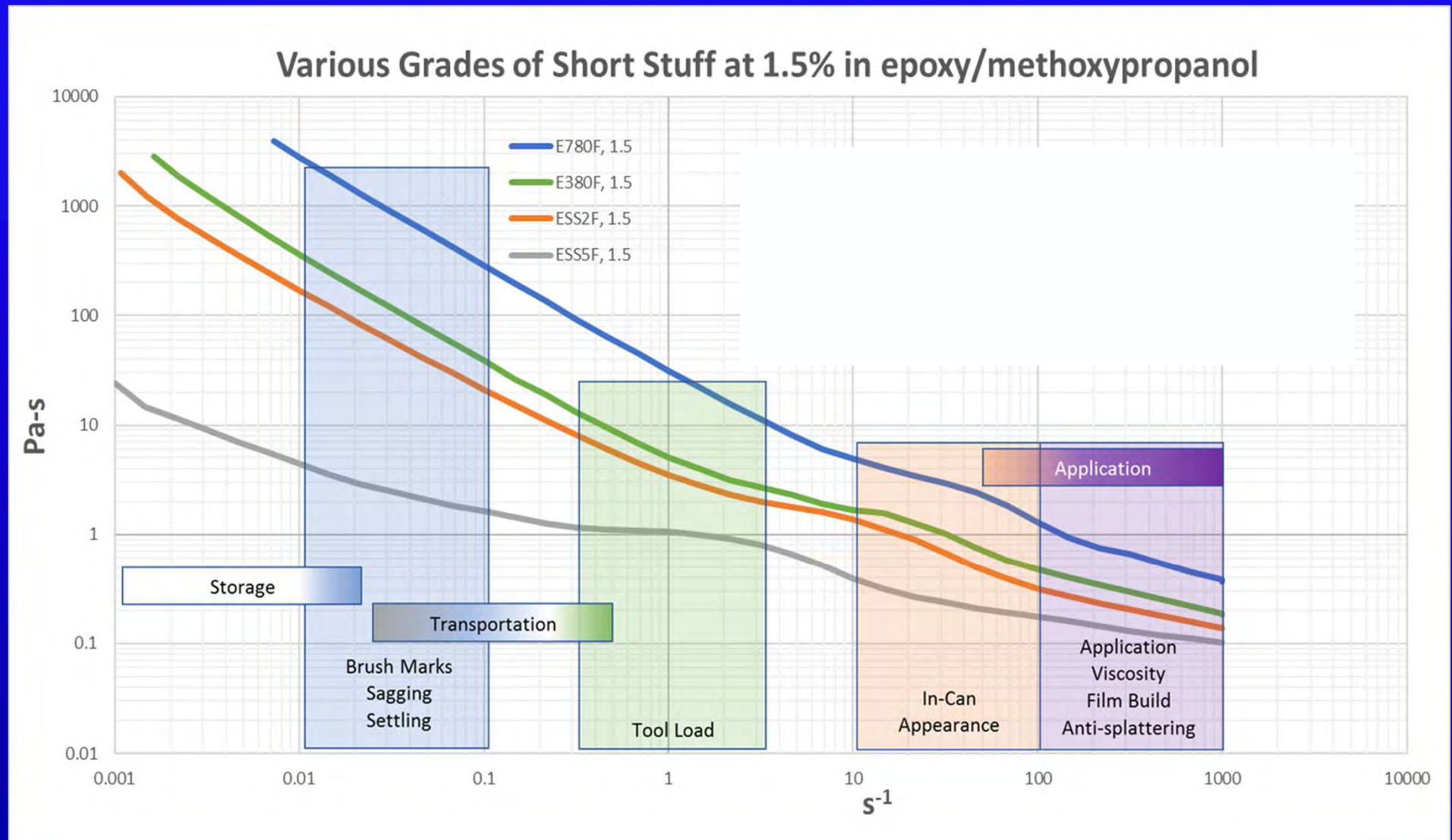


The Rheology of Short Stuff[®] in Epoxy



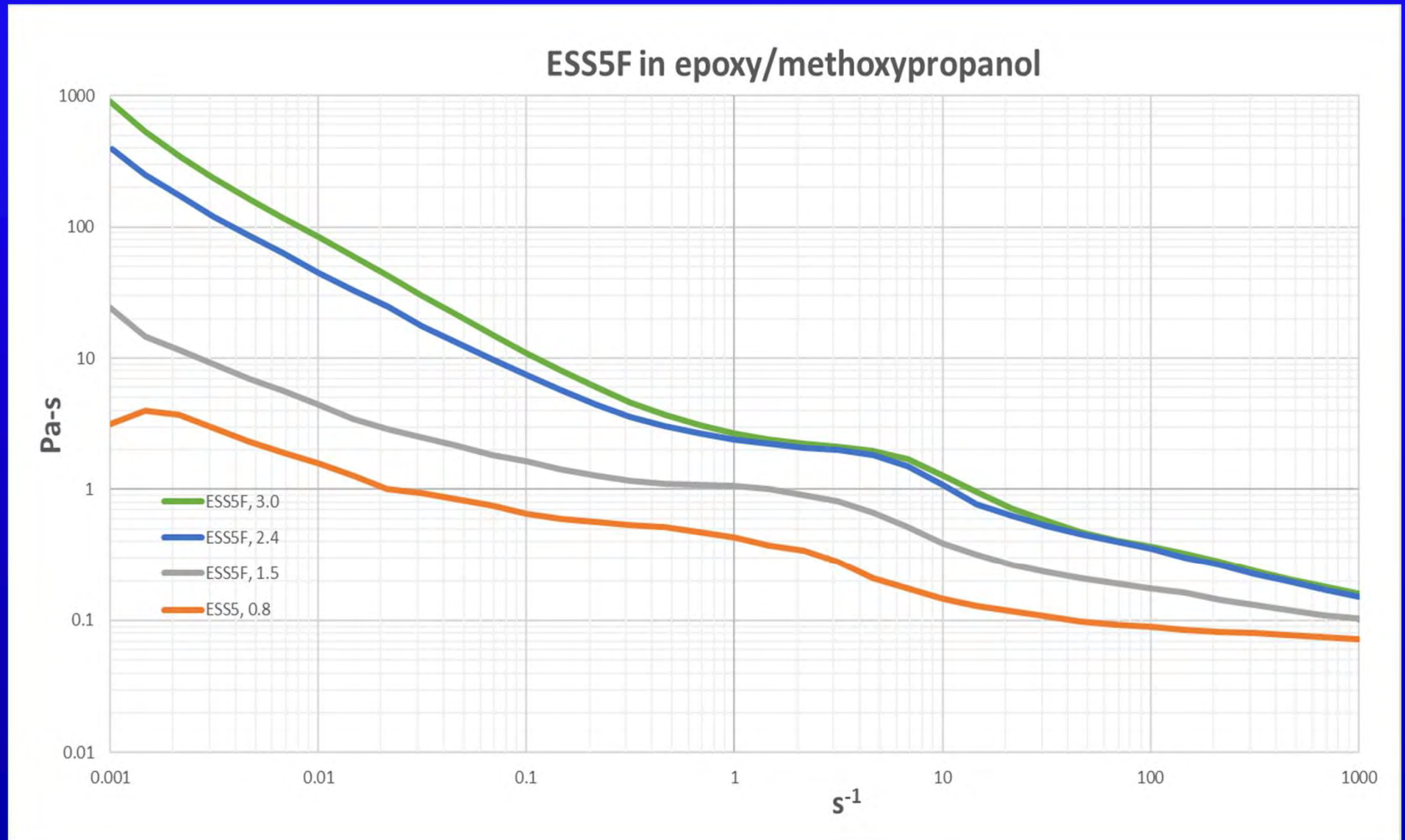
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The Rheology of Short Stuff® in Epoxy



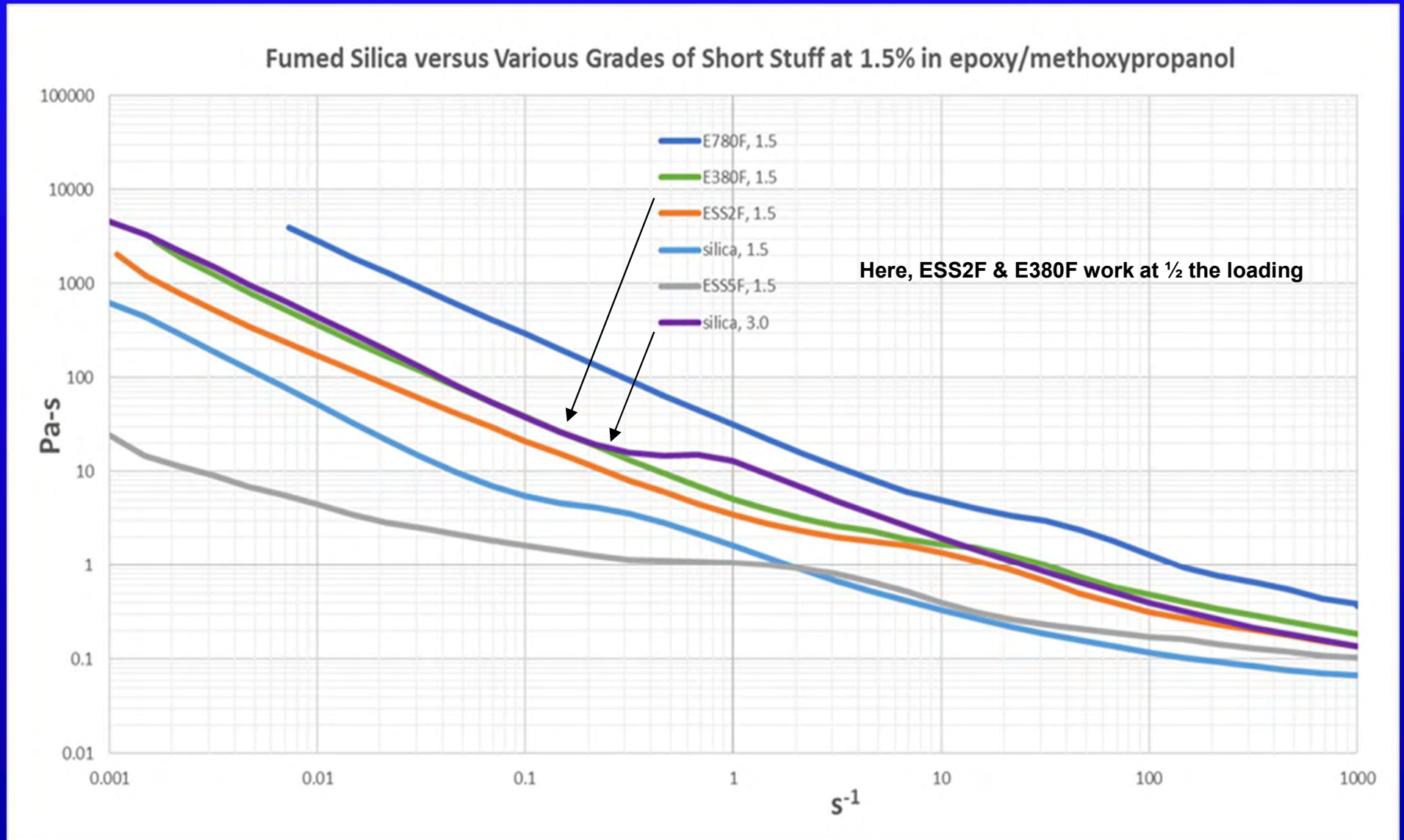
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The Rheology of Short Stuff[®] in Epoxy



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Fumed Silica Replacement in Epoxy

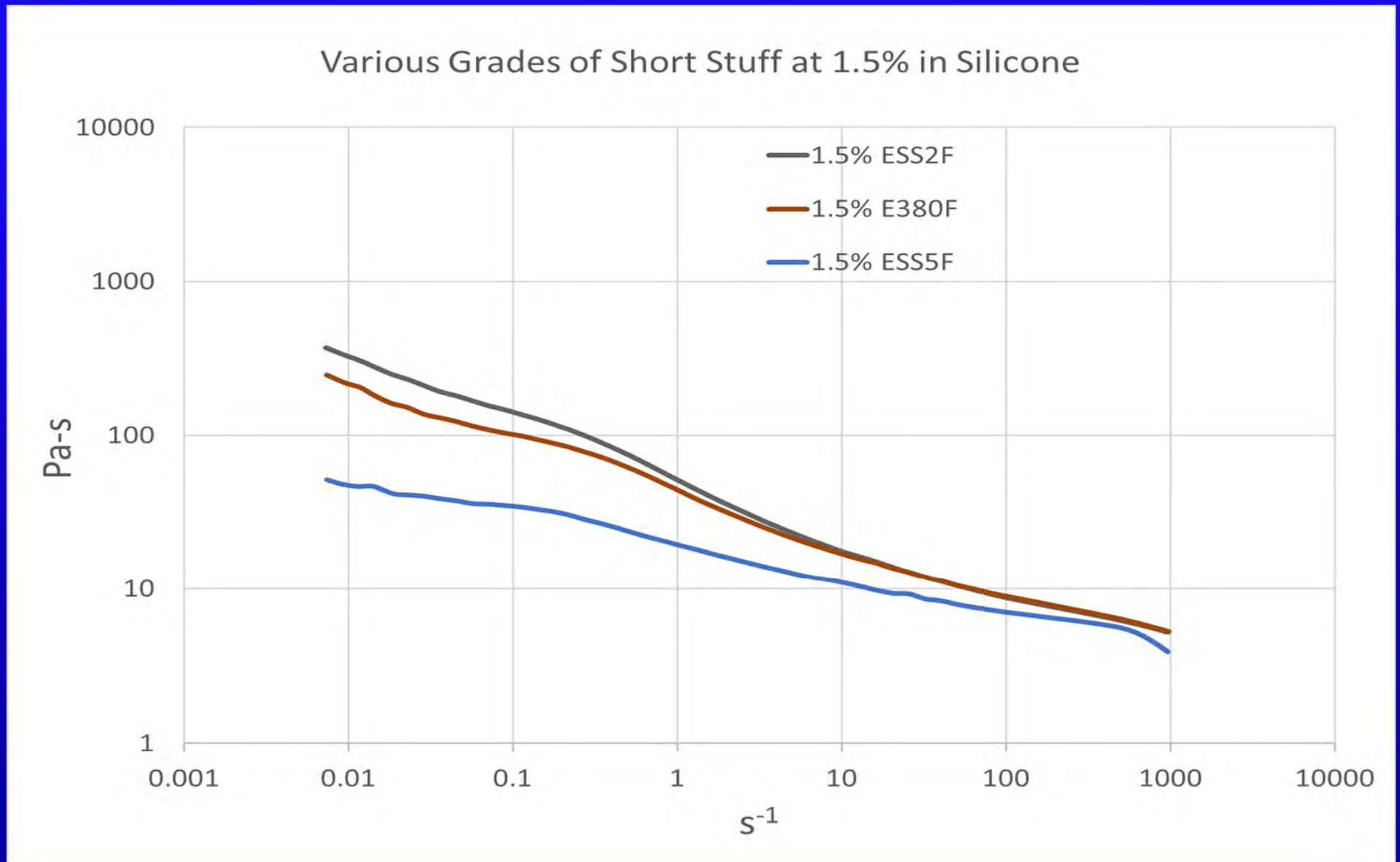


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Short Stuff® in Silicone



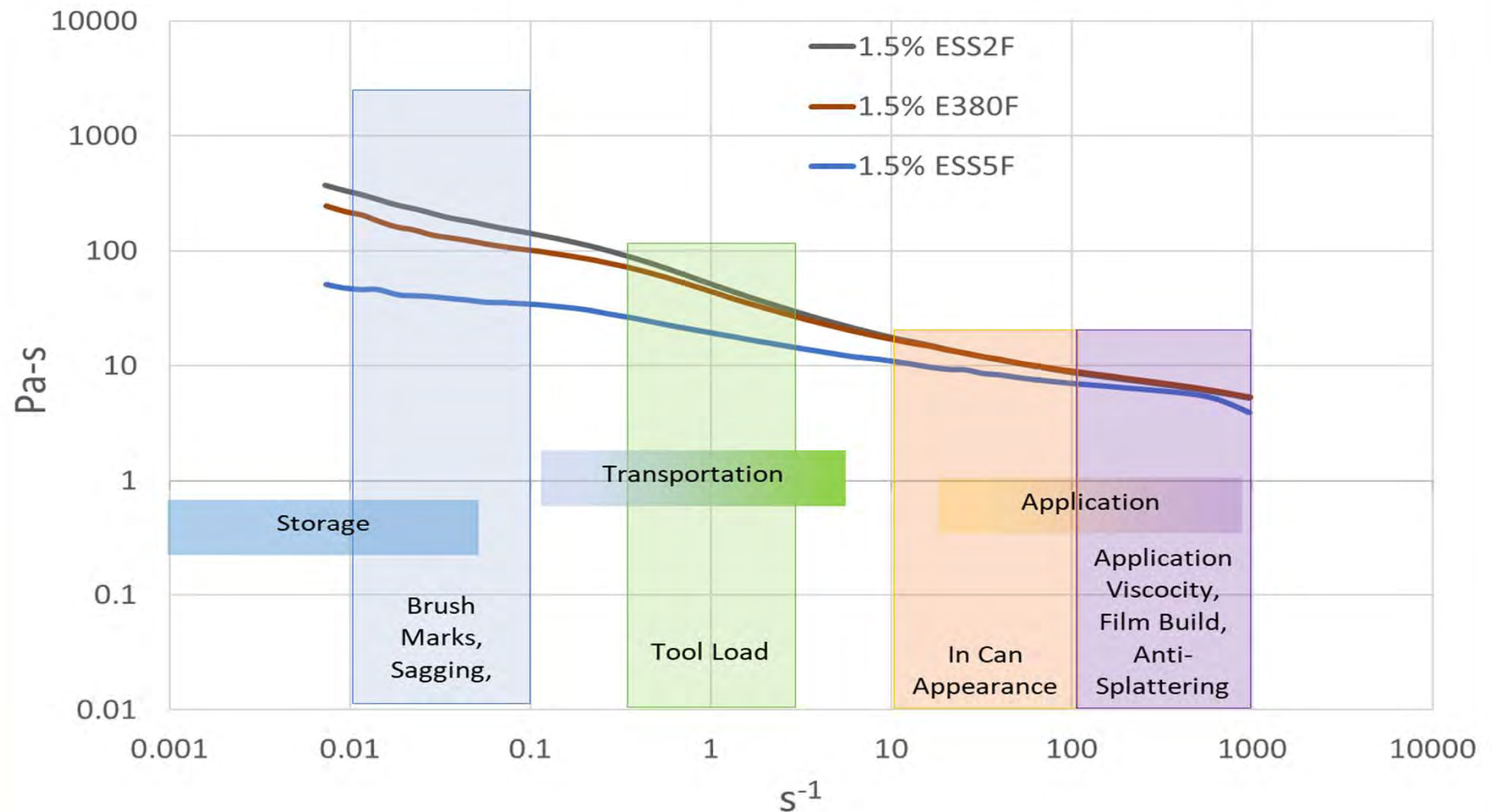
The Rheology of Short Stuff[®] in Silicone



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The Rheology of Short Stuff[®] in Silicone

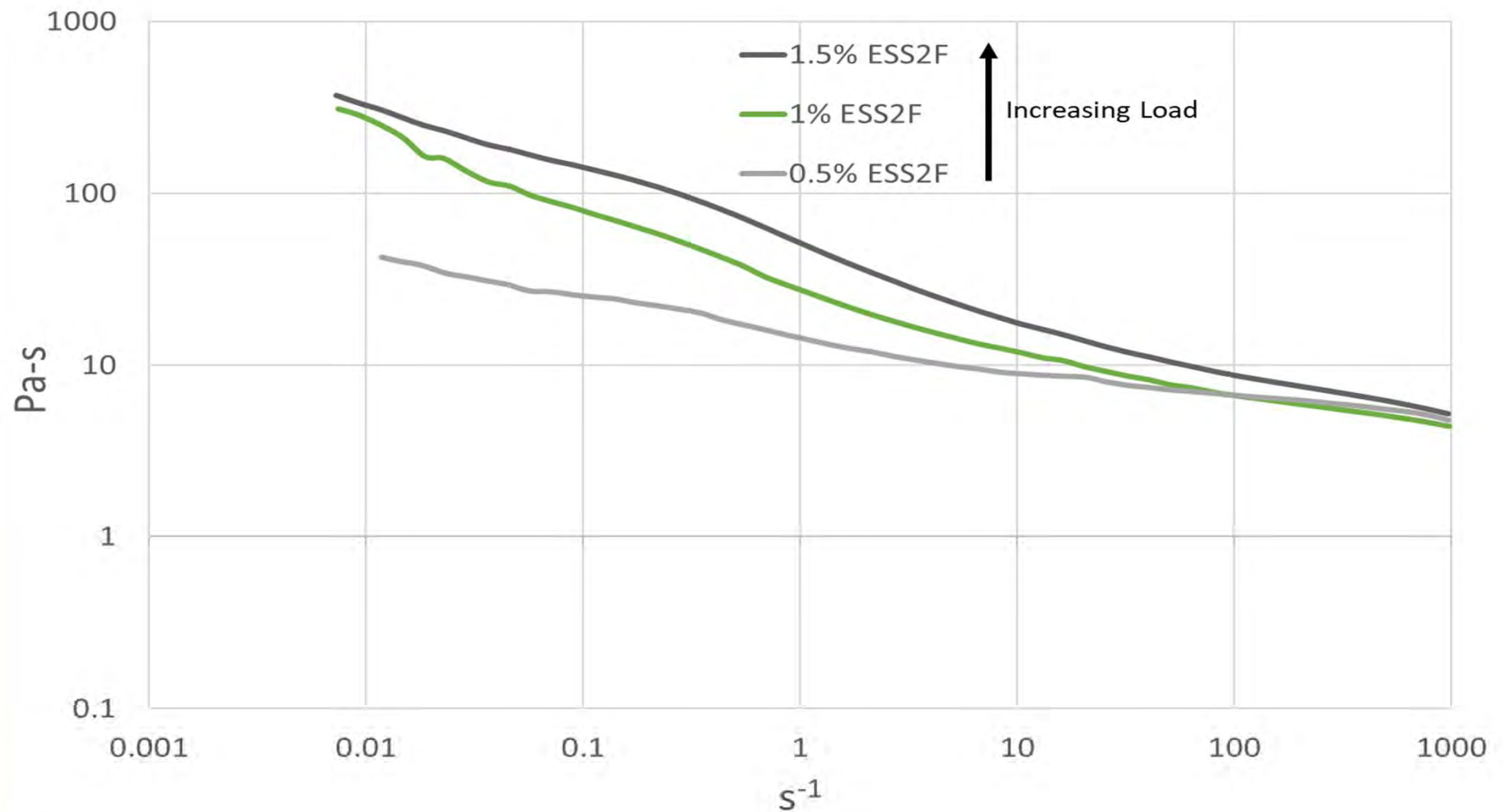
Various Grades of Short Stuff at 1.5% in Silicone



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The Rheology of Short Stuff[®] in Silicone

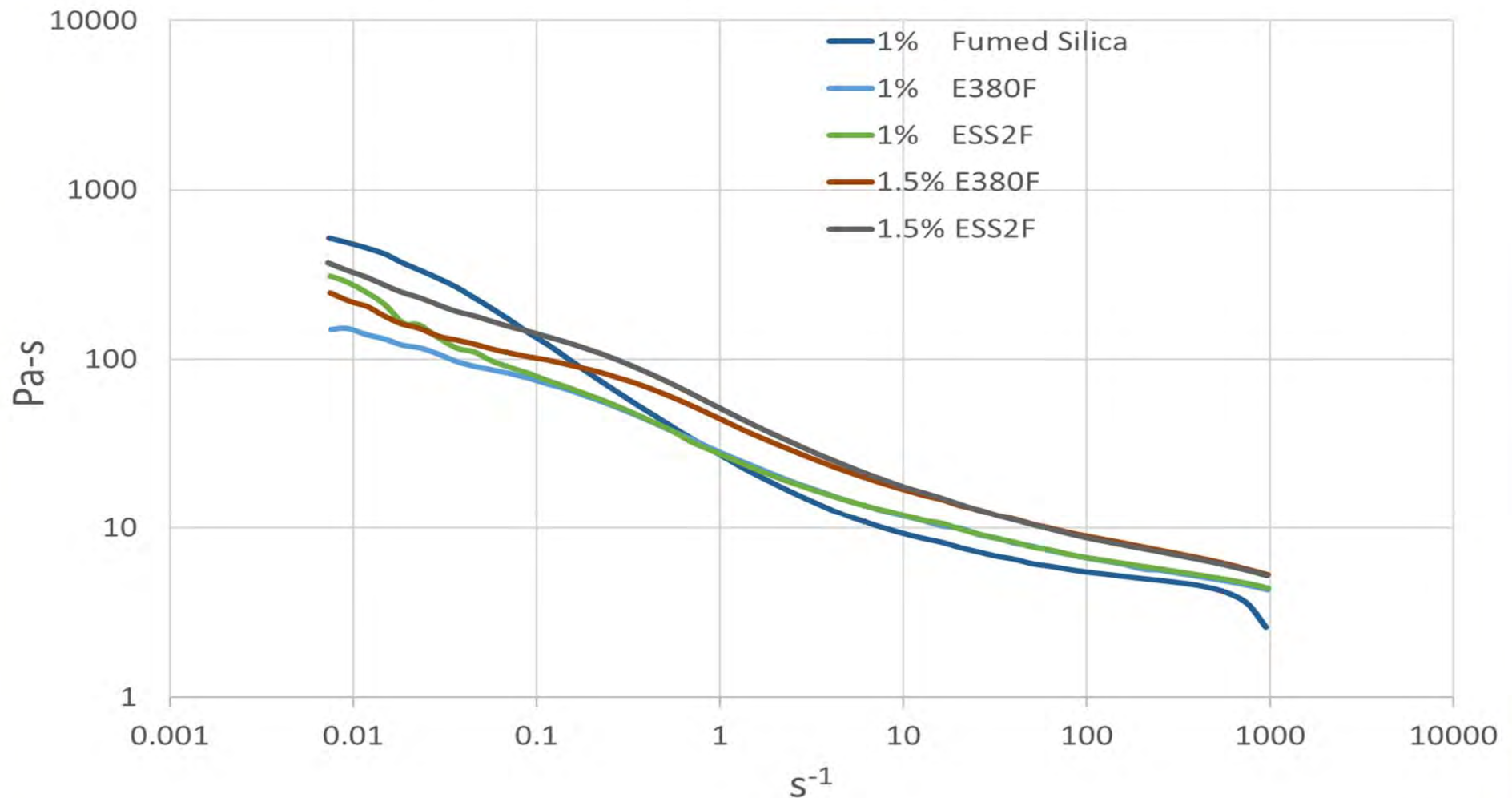
ESS2F in Silicone



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Fumed Silica Replacement in Silicone

Various Grades of Short Stuff® vs Fumed Silica in Silicone



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Short Stuff® Summary

Short Stuff® is an effective alternative to Fumed Silica in many epoxy & silicone based systems.

- The larger the grade the more thickening observed.
- As you increase loading you get more thickening.
- In many Epoxy systems you can use **50%** less by weight.

In silicone systems equal weight may be required. Final amount may be formula specific.

Short Stuff® performance is not compromised or influenced by system pH, or normal batch temperatures.

Short Stuff® offers a price competitive alternative to Fumed Silica, and several logistical advantages.

THANK YOU!

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