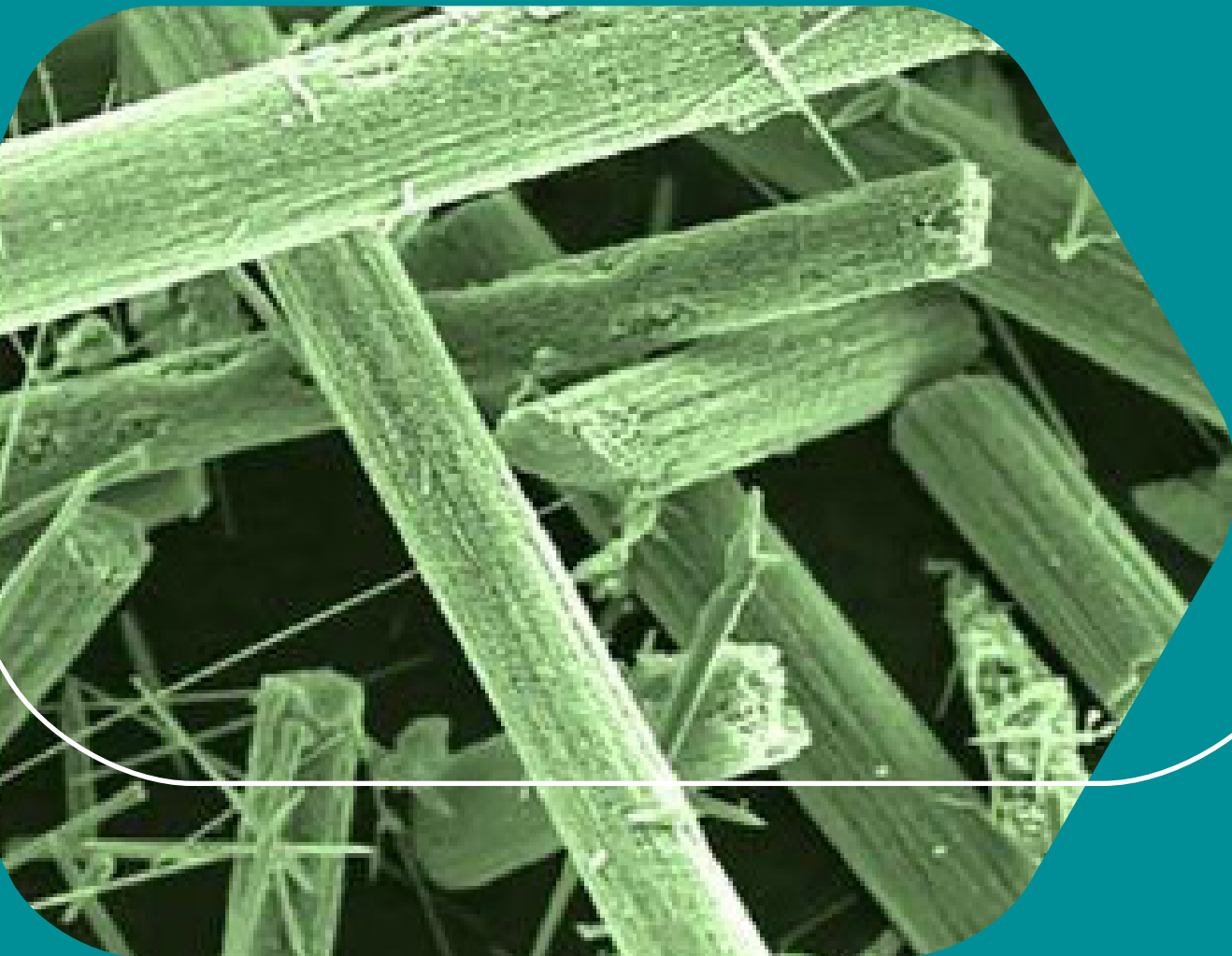


Creating Material Change



SI-TUFF™ SF-1E

Technical Data Sheet



*Innovation underpins everything we do*

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HaydaleGraphene



# SF-1E Deagglomerated Silicon Carbide Microfibers

Haydale's SI-TUFF™ SF-1E is a diamond-like SiC additive used to toughen protective coatings and extend their useful lifetime. It improves abrasion and scratch resistance, thermal conductivity, temperature stability, and hardness at low loading levels without affecting other desirable properties, including non-stick/release, flexibility, and low friction.

Epoxy-functionality allows SF-1E to chemically lock into the polymer matrix, which can increase performance in compatible reactive coating systems.

SF-1E can interact in complex ways with your coating system, and in many applications can degrade performance.

## Processing and Applications:

If used properly, service life is expected to increase by 20-35%.

Critical considerations include selecting the appropriate product grade and form, exercising proper dispersion technique, incorporating into the correct coating layer(s), and using the right loading levels.

Haydale recommends reviewing the Applications Guide for more detailed usage information before beginning your evaluation.

Typical Properties	
Chemical Composition	Polycrystalline $\beta$ -SiC
Crystal Structure	Diamond Cubic
Geometry	High L/D Rigid Rod Microfiber
Mean Diameter, $\mu\text{m}$	0.65
Medium Length, $\mu\text{m}$	10-12 (D50)
Modulus, GPa	450 (estimated)
Density, $\text{g}/\text{cm}^3$	3.21
Hardness, (Mohs)	9.5



SUPER TOUGH



HEAT TRANSFER



SUPER STRONG

## Packaging and Product Handling:

SI-TUFF™ SF-1E is available immediately for purchase. It can be packaged as a dry powder or a dispersion in resin, oligomer or monomer.

- Powder - packaged in 50lb (22.7kg) bags contained in fiber drums
- Aqueous dispersions - packaged in 400lb (181kg) steel drums
- Smaller quantities - available for purchase for development purposes

Dry SF-1E powder is a respirable fiber and it is recommended to be handled in a controlled environment. Please consult the SDS for additional safety and handling information.

**The content supplied in this technical data sheet ("Information") supersedes all previous versions supplied. Version 2, September 2019**

The Information should be used solely as guidance for the safe handling, storage, processing and/or use of the Product and is only typical of the methods described. The Haydale Group (Haydale Group means Haydale Technologies Inc., as a subsidiary of Haydale Graphene Industries plc., and any subsidiary or holding company from time to time and any subsidiary from time to time of any holding company of Haydale Limited) gives no express or implied warranty or guarantee or representation as to the behaviour of the Product described herein during any handling or storage or processing or use of the Product. To the extent permissible by law the Haydale Group shall under no circumstances whatever be liable whether in contract, tort (including negligence), breach of statutory duty, or otherwise, for any damage, including loss of profit, or any indirect or consequential loss arising under or in connection with any handling or storage or processing or use of the Product.



Contact us: [info@haydale.com](mailto:info@haydale.com)