

Tow, Carbon Fiber  
For Structural Composites  
500 (3447) Tensile Strength, 32 (221) Tensile Modulus

1. SCOPE:

1.1 Form:

This specification covers one type of carbon fiber in the form of tow.

1.2 Classification:

Carbon tow with 500 ksi (3447 MPa) tensile strength and 32 Msi (221 GPa) tensile modulus for use in general purpose structural composites requiring high tensile strength and high modulus of elasticity in tension.

2. APPLICABLE DOCUMENTS:

See AMS 3892.

3. TECHNICAL REQUIREMENTS:

3.1 Basic Specification:

The complete requirements for procuring the carbon tow described herein shall consist of this document and the latest issue of the basic specification.

3.2 Storage Life:

The product shall be readily strippable from the spool and the filaments spreadable when tested at any time up to 12 months from date of receipt by purchaser provided it has been stored at room temperature in the original closed container.

SAE Technical Standards Board Rules provide that: "This report is published by SAE to advance the state of technical and engineering sciences. The use of this report is entirely voluntary, and its applicability and suitability for any particular use, including any patent infringement arising therefrom, is the sole responsibility of the user."

SAE reviews each technical report at least every five years at which time it may be reaffirmed, revised, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2005 SAE International

All rights reserved. No part of this publication may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, electronic, mechanical, photocopying, recording, or otherwise, without the prior written permission of SAE.

TO PLACE A DOCUMENT ORDER: Tel: 877-606-7323 (inside USA and Canada)  
Tel: 724-776-4970 (outside USA)  
Fax: 724-776-0790  
Email: [custsvc@sae.org](mailto:custsvc@sae.org)  
http://www.sae.org

SAE WEB ADDRESS:

## 3.3 Properties:

Shall conform to the requirements shown in Table 1. The requirements of 3.3.1 and 3.3.2 apply to the average of four determinations for each property; no individual value shall be less than 90% of the minimum average values specified. The tests of 3.3.1 and 3.3.2 are lamina tests, normalized to 100% fiber volume. Tensile strain (3.3.3) is a calculated value, tensile strength divided by modulus of elasticity.

TABLE 1 - Properties

Paragraph	Property	Requirement
3.3.1	Tensile Strength, minimum	500 ksi (3447 MPa)
3.3.2	Tensile Modulus, minimum	32 Msi (221 GPa)
3.3.3	Tensile Strain, minimum	1.6%
3.3.4	Mass per unit length nominal	Preproduction Value $\pm$ 5%
3.3.5	Finish Content, maximum	3% by weight
3.3.6	Density	0.0625 to 0.0660 pound per cubic inch (1.73 to 1.83 g/cm <sup>3</sup> )

## 4. QUALITY ASSURANCE PROVISIONS:

See AMS 3892.

## 5. PREPARATION FOR DELIVERY:

See AMS 3892.

## 6. ACKNOWLEDGMENT:

See AMS 3892.