



AEROSPACE MATERIAL SPECIFICATION

AMS6891™/1

Issued

2020-12

Carbon Fiber and Fiberglass Epoxy Prepreg Products
with 350 °F (177 °C) Cure for Aerospace Applications:
Type 35, Class 1, Grade 191

RATIONALE

Widely distributed and available industry material specifications are required for procurement of composite materials whose allowables data is published in CMH-17.

NOTICE

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.

1. SCOPE

The intent of this specification is for the procurement of the material listed on the QPL; therefore, no qualification or equivalency threshold values are provided. Users that intend to conduct a new material qualification or equivalency program must refer to the Quality Assurance section of this base specification, AMS6891.

1.1 Form

This detail specification along with the base specification, AMS6891, establish the requirements for carbon fiber impregnated with a modified B-staged epoxy resin.

1.2 Classification

All products qualified to this detail specification have the following classifications:

Form 1, Type 35, Grade 191, Class 1
Form 2, Type 35, Grade 191, Class 1
Form 3, Type 35, Grade 191, Class 1

For an explanation of these classifications, please refer to the base specification.

2. APPLICABLE DOCUMENTS

Refer to base specification.

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 revised, reaffirmed, stabilized, or cancelled. SAE invites your written comments and suggestions.

Copyright © 2020 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: +1 724-776-4970 (outside USA)
Fax: 724-776-0790
Email: CustomerService@sae.org
http://www.sae.org

SAE WEB ADDRESS:

Full document details: SAE AMS6891_1

For more information on this standard, visit
<https://www.sae.org/standards/content/AMS6891/1/>

Documents
Document Sharing Hub

3. MATERIAL REQUIREMENTS

3.1 General Requirements

In case of conflict between requirements of the base specification and this detail specification, requirements of this detail specification must govern.

3.2 Prepreg Material Requirements

3.2.1 Uncured Prepreg Physical and Chemical Properties

The uncured prepreg physical and chemical properties must be in accordance with [Table 1](#) when tested in accordance with the designated method. Specific procedures must be identical, or equivalent, to those used in the original material qualification program. The material must be capable of being cut without disarray of the fibers and without other visible damage.

Table 1 - Uncured prepreg physical and chemical property

Property	Test Method	Frequency	Requirement	
Resin Content ⁽²⁾	ASTM D3529, 4.4.1 of the base specification	Every master roll ⁽¹⁾	35.5% ± 2%	
Fiber Areal Weight ⁽²⁾	ASTM D3529, 4.4.1 of the base specification	Every master roll ⁽¹⁾	191 g/m ² ± 5 g/m ²	
Volatile Content	ASTM D3530, 4.4.2 of the base specification	Once per batch	2.0% maximum	
Gel Time	ASTM D3532, 4.4.3 of the base specification	Once per batch	9 to 23 minutes	
Resin Flow	ASTM D3531, 4.4.4 of the base specification	Once per batch	12 to 20%	
Tack	4.4.6 of the base specification	Once per batch	Level 4 or 5	
Infrared Spectroscopy (IR)	ASTM E1252 and ASTM E168, 4.4.5 of the base specification	Two specimens from the start and end of every batch	ATR: 0.99 correlation minimum	
High Performance Liquid Chromatography (HPLC) ⁽²⁾	SACMA SRM 20R-94, 4.4.7 of the base specification	One specimen from the start and end of every batch	P2/P1	0.92 to 1.43
			P3/P1	1.75 to 2.63
			P4/P1 ⁽³⁾	0.11 max
Differential Scanning Calorimetry (DSC) (Sub-Ambient T _g)	ASTM E1356, 4.4.8 of the base specification	Start and end of every batch ⁽¹⁾	Maximum 11 °C	

⁽¹⁾ Three specimens should be taken across the width of the prepreg: left, center, right.

⁽²⁾ Key characteristic required for SPC control.

⁽³⁾ P4/P1 requirement reflects supplier out-of-storage allowance. For user verification of work life, requirement is 0.35 and is representative of the work life requirement of the prepreg.

3.2.2 Cured Laminate Physical Properties

The cured laminate physical properties must be in accordance with [Table 2](#) when tested in accordance with the designated method.

Specific procedures must be identical, or equivalent, to those used in the original material qualification program.