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**NCAMP Material Specification**

*This specification is generated and maintained in accordance with NCAMP  
Standard Operating Procedures, NSP 100*

Medium Temperature, Out-of-Autoclave, Oven-Vacuum-Bag Cure Epoxy Resin  
Impregnated Fiber Reinforced Composite Materials, Type 32, Class 1, Grade 145

Solvay (Formerly Cytec, Umeco Structural Materials (USM-OK), The Advanced  
Composites Group (ACG)) MTM 45-1 AS4 Tape

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REVISIONS:

<b>Rev</b>	<b>By</b>	<b>Date</b>	<b>Pages Revised or Added</b>
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## 1. SCOPE:

### 1.1 Form:

This detail specification along with the base specification NMS 451 establishes the requirements for continuous unidirectional carbon fiber impregnated with a modified B-staged epoxy resin (“unidirectional tape prepreg”). The prepreg is produced using a hot-melt process.

This detail specification follows the section and table numbering scheme of the base specification. It contains additional or superseding requirements. The base specification shall govern where no additional requirement is specified; in such cases, the applicable sections are omitted from this detail specification.

**1.3 Classification:** All products qualified to this detail specification have the following classification: Type 32, Class 1, Grade 145

## 3. TECHNICAL REQUIREMENTS:

Table 1 – Prepreg Physical and Chemical Properties

Property	Test Method <sup>(1)</sup>	Number of Replicates	Requirements <sup>(3)</sup>
Resin Content	ASTM D3529	Every roll <sup>(2)</sup>	32±3% ind. 32±2% avg.
Fiber Areal Weight	SACMA SRM 23R-94	Every roll <sup>(2)</sup>	145±7 gsm ind. 145±5 gsm avg.
Volatile Content	ASTM D3530	First and last rolls of every batch <sup>(2)</sup>	2.0% max ind. 0.8% max avg.
Flow	ASTM D3531	First and last rolls of every batch <sup>(2)</sup>	9.0 to 18.0% avg.
Gel Time	ASTM D3532	Optional	54 to 65 minutes, ind.
Tack	See 4.6.1	First and last rolls of every batch	Level IV
Drape	See 4.6.2	First and last rolls of every batch	Pass
HPLC	SACMA SRM 20R-94	One roll per batch <sup>(4)</sup>	P1/P2 = 0.75 to 1.35 P1/P3 = 1.0 to 2.25

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## 3.5.3 Cured Laminate Mechanical Properties:

TABLE 4 - Required Cured Laminate Tests for Mechanical Properties (Class 1)

Property	Test Method <sup>(1)</sup>	Requirements <sup>(3)</sup>
0/90° Tension Strength and Modulus, Room Temperature Dry Layup: [0/90] <sub>4S</sub> 90/0nTJ ET EMC /Span 5EMCW.	ASTM D3039	Strength <sup>(2)</sup> : Min. Ind.    15.3 ksi Strength <sup>(2)</sup> : Average    33.8 ksi Modulus <sup>(2)</sup> : 9.08 and 10.71 msi, avg.

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