

F

LABORATORY

www.novincomposite.com



1. Introduction

One of the main targets of the NCS is to give full customer satisfaction regarding the quality of their manufactured products. Therefore, the necessary tests are divided in three main groups of raw materials, final products and special tests for dual laminate products.







1.1 Raw materials testing

Products manufactured in NCS mainly consist of fibers and resins. It is essential tests accurately these two materials in the laboratory to confirm the presence of the required properties.

1.1.1 Chemical Resistance Test:

This test would be carried out in accordance with the ASTM D543:



1.1.2 Water Absorption Test:

This test would be carried out in accordance with the ASTM D570.

1.1.3 Viscosity Test:

This test would be carried out in accordance with the ASTM D1200





1.1.4 Density Test:

This test would be carried out in accordance with the ASTM D70

1.1.5 Gel Time Test:

This test would be carried out in accordance with the ASTM D2471



1.1.6 Hardness Test:

This test would be carried out in accordance with the ASTM D2583





1.1.7 HDT Test: This test would be carried out in accordance with the ASTM D648



1.1.8 Texture Control Test: This test would be carried out in accordance with the ISO 1889:





1.1.9 Moisture Content Test:

This test would be carried out in accordance with the ISO 3344:



1.1.10 Combustible Matter Test

This test would be carried out in accordance with the ISO 1887





1.2 Final Products Tests:

In order to ensure the quality of the products, various chemical and mechanical tests would be carried out according to the related standards:

1.2.1 Water Absorption & Chemical Resistance:

These test would be applied like water absorption and chemical resistance for raw materials in accordance with ASTM D570 and ASTM D543.



1.2.2 Glass Content:

This test would be carried out in accordance with the ASTM D2584





1.2.3 Longitudinal Tensile Strength:

This test would be carried out in accordance with the ASTM D3039.



1.2.4 Lap Shear Strength:

This test would be carried out in accordance with the ISO 4587.

1.2.5 Hardness:

This test would be carried out in accordance with the ASTM D2583.

4.2.6 Hydrostatic Test:

This test would be carried out in accordance with the ASTM D3517.





1.2.7 Long-term Strain Corrosion Test:

This test would be carried out in accordance with the ASTM D3681.



1.2.8 Long-term specific ring creep stiffness under wet conditions:

This test would be carried out in accordance with the ISO 10468.





1.2.9 Long-term Hydrostatic Design Base:

This test would be carried out in accordance with the ASTM 2992.









1.3 Special Tests for Dual Laminate Products:

1.3.1 UDCB Test:

UDCB (Unlike double cantilever beam) test carried out in accordance with ASTM D5528 "Standard Test Method for Mode I Interlaminar Fracture Toughness of Unidirectional Fiber-Reinforced Polymer Matrix Composites":

It is worth mentioning this test is performed by primers produced by Novin Composite Sara Co.











1.3.2 UENF Test:

UENF (Unlike end-notched flexure) test carried out in accordance with ASTM D7905:







2. References:

ASTM D543. Standard Practices for Evaluation the Resistance of Plastics to chemical Reagents.

ASTM D570. Standard Test Method for Water Absorption of Plastics.

ASTM D1200. Standard Test Method for Viscosity by Ford Viscosity Cup.

ASTM D70. Standard Test Method for Density of Semi-Solid Asphalt Binder (Pycnometer Method).

ASTM D2471. Standard Test Method for Gel Time and Peak Exothermic Temperature of Reacting

Thermosetting Resins.

ASTM D2583. Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.

ASTM D648. Standard Test Method for Deflection Temperature of Plastics Under Flexural Load in the Edgewise Position.

ISO 1889. Reinforcement yarns — Determination of Linear Density.

ISO 3344. Reinforcement Products — Determination of Moisture Content.

ISO 1887. Textile Glass — Determination of Combustible-matter Content.

ASTM D2584. Standard Test Method for Ignition Loss of Cured Reinforced Resins.

ASTM D3039. Standard Test Method for Tensile Properties of Polymer Matrix Composite Materials.

ISO 4587. Adhesives — Determination of Tensile Lap-Shear Strength of Rigid-to-Rigid Bonded Assemblies.

ASTM D3517. Standard Specification for "Fiberglass" (Glass-Fiber-Reinforced Thermosetting-Resin)

Pressure Pipe.

ASTM D3681. Standard Test Method for Chemical Resistance of "Fiberglass" (Glass–Fiber–Reinforced

Thermosetting-Resin) Pipe in a Deflected Condition.

ISO 10481. Glass-Reinforced Thermosetting Plastics (GRP) Pipes — Determination of the Long-Term Specific Ring Creep Stiffness Under Wet Conditions and Calculation of the Wet Creep Factor.

ASTM D2992. Standard Practice for Obtaining Hydrostatic or Pressure Design Basis for "Fiberglass" (Glass-

Fiber-Reinforced Thermosetting-Resin) Pipe and Fittings.



ASTM D5528. Standard Test Method for Mode I Interlaminar Fracture Toughness of Unidirectional Fiber-Reinforced Polymer Matrix Composites.

ASTM D7905. Standard Test Method for Determination of the Mode II Interlaminar Fracture Toughness

of Unidirectional Fiber-Reinforced Polymer Matrix Composites.



Novin Composite

Producer of composite parts in Aerospace , Oil Gas , and Petrochemical industries Supplier of raw material in composite industries

No. 321B, 3rd of Kooshesh St., technologies industrial state, Mashhad, Iran

Tel : +9851 - 32400110 - 18 Fax : +9851 - 32400119 Email: info@novincomposite.com Website: www.novincomposite.com

