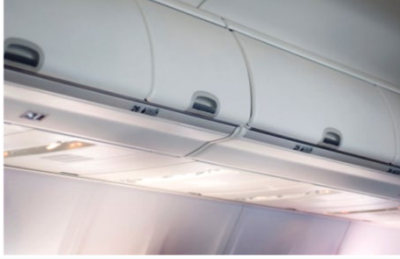


M-711 - General Roving Specifications



Fiberglass is a natural, lustrous, white fiber that AGY produces in either a yarn, roving or chop form. The filaments are smooth, non-cellular and generally cylindrical in form and with the exception of the inorganic sizing, are non-combustible.

General Product Properties

Product nomenclature is based on the industry standards established by ASTM D578, and are produced in an ISO 9001:2008 certified facility. The basic format for this nomenclature is, for example:

463-AA-750

Where,

463 = Binder designation

AA = Internal AGY designation used to identify the process used to produce the material

750 = Yield designation in yards /lb

Weather tests have indicated comparatively unlimited stability under repeated cycles of heat, cold, sunlight, dampness and drying.

AGY products, in general, shall be free of the following internal or external characteristics for rovings:

Trapped waste

Dirt, oil or grease

Mixed product

Ends out

Damaged fibers

Protruding ends

Bad builds*

Loops

Crosscuts

Soft or loose winding

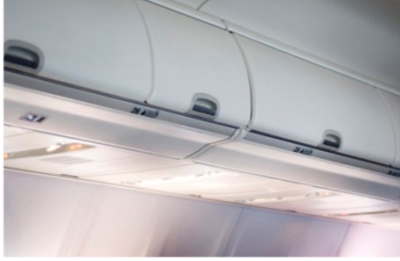
*Bad builds include any package that is not flat, straight and square. Any package in which the wind bulges beyond the end of the core is a non-conformance. An excessively telescoped end or concave shaped end, excessive deformation into a barrel or dog-bone shape, or excessive ridges on the end may also be a non-conformance.

Roving doffs are square-edged, cylindrical packages which are firmly and evenly wound. For assembled roving products, splices are permitted and if splices on two or more strands are required simultaneously, the splices shall be spaced so as to prevent overlapping of the spliced area.

AGY accepts no responsibility for any damaged or sloughed material that is contained in a carton that shows any evidence of physical abuse.

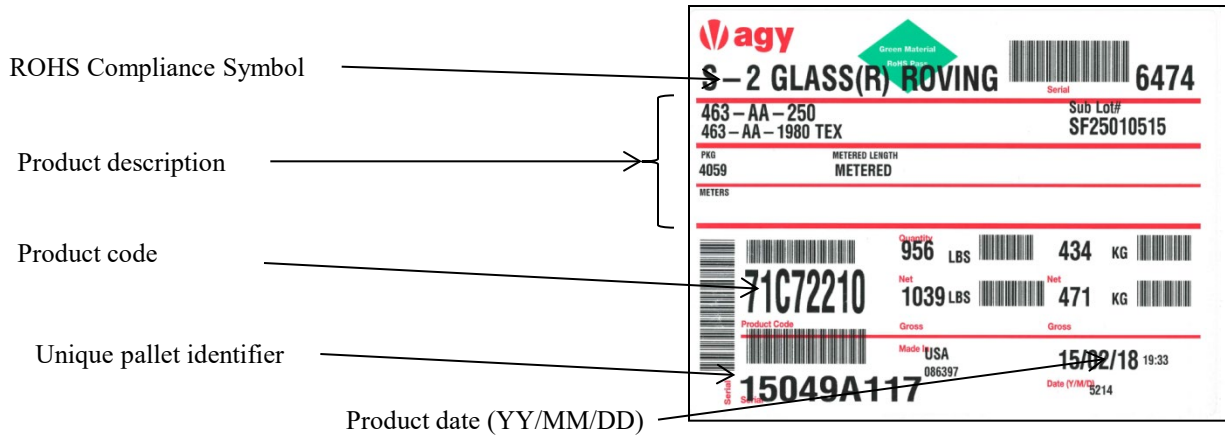
Each individual package shall be labeled with an identifier and will be packaged in a container suitable to ensure adequate protection in transit and storage. Each carton shall have a content label that appropriately identifies the contents.

M-711 - General Roving Specifications

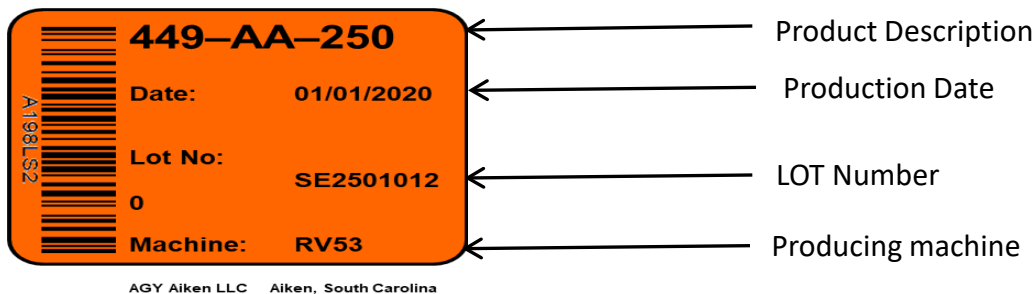


Labeling

All pallets have a product label that has the following content:



Each individual package also contains a label to easily identify the product as shown:



Specialty Product Identifiers:

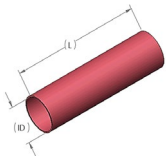





Our specialty glass products have a unique product identifier label, making the products easy to identify. The colors for these labels are:

- S-2® Rovings = **Orange**
- E rovings = **Blue**



Package specification

Roving Package Dimensions

Package	4044*		4144		4057		4059		4159*	
										
Product Form	Single End □		Single End		Assembled [Non-Metered]		Assembled [Metered]		Assembled	
Measurement Units	US (in)	SI (cm)	US (in)	SI (cm)	US (in)	SI (cm)	US (in)	SI (cm)	US (in)	SI (cm)
Inside Diameter (ID)	6.38	16.19	6.38	16.19	3.00	7.62	3.00	7.62	3.00	7.62
Length (L)	10.50	26.70	10.90	27.69	10.90	27.69	10.90	27.69	10.00	25.40
Traverse (T)	10.25	26.04	10.00	25.40	10.00	25.40	10.00	25.40	10.00	25.40
Pull	Inside		Outside		Outside		Outside		Inside	
Build	Square Edge		Square Edge		Square Edge		Square Edge		Square Edge	
Max Outside Diameter (OD)	8.68	22.05	8.83	22.43	7.00	17.78	7.00	17.78	7.00	17.78

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* The 4044 and 4159 packages do not have an inner tube. The glass is wound into a cylindrical shape without a core.

Storage, Shelf Life and Handling

Storage and Shelf Life:

AGY recommends storing the materials in accordance with appropriate safety considerations, away from exposure to the elements and at 65-80F (18-27C) and 50-70% humidity. If the materials are stored under these conditions, they are stable, non reactive and will not degrade or exhibit negative characteristics for at least 3 years from the date of manufacture. Unused, unopened product older than this is likely still in good condition, however careful evaluation is recommended. Prior to use, pallets should be placed in the production area and any plastic wrap removed for a minimum of 24 hours to allow the material to acclimate to the processing environment. Special care should be given to pallets being moved from a cold environment into a warm, humid area as condensation may occur and this additional moisture can negatively impact the runability of the material, however, once the material has acclimated, this will no longer be an issue.

For product traceability reasons, the pallet label should be recorded or retained.

Handling:

Fiberglass products process best if temperature and humidity are controlled, primarily because this will help to control the buildup of static electricity, fuzz and fly. AGY recommends that the material be run at 70 +/- 5 degrees F and 60 +/- 5% RH.

Test Methods and Certificates

A copy of test methods and or a certificate of conformity may be issued upon request.

AGY certifies that all of the AGY products are in compliance with the current REACH and RoHs requirements. Specific details pertaining to these regulations are available upon request.

Property	Test Method
Yardage / Tex	W-07Ea
Binder Solids Content	W-07Ea
Moisture Content	W-07Ea
Catenary	D-14-Ca-T
Package Density	W-02F-T
Package Hardness	S-09Ca-T
Fuzz	X-01Ac
Impregnated Strand Tensile Strength	S-01Ka

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