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Fiberglas INSULATION FOR INDUSTRIAL USES

MAJOR CHARACTERISTICS

- 1 High Insulating Value.
- 2 Extremely Low Moisture Absorption.
- 3 Freedom from Rotting.
- 4 Rodent-, Vermin- and Termite-Proof.
- 5 Freedom from Odors.
- 6 Non-absorption of Odors.
- 7 Fungus- and Bacteria-Proof.
- 8 Light Weight.
- 9 Non-inflammability.
- 10 Permanence.
- 11 Resistance to Acid.
- 12 Sound Absorption.
- 13 Resiliency and Flexibility.
- 14 Adapts itself to uneven surfaces.
- 15 Availability in Different Densities.
- 16 Adaptability to Combination with Other Materials.



OWENS-ILLINOIS GLASS COMPANY
Industrial and Structural Products Division
TOLEDO, OHIO

POWER PRODUCTS

OWENS-ILLINOIS
Fiberglas

FIBERGLAS INSULATION

The basic material used in Owens-Illinois Insulating Blankets described here is Fiberglas, an insulating wool made of fine-blown filaments of glass.

Fiberglas has the natural advantages of glass . . . chemical and physical stability, long life and a relative freedom from change in character either through age or contact with other materials. But, in addition, it has physical characteristics not usually associated with glass. It is a wool in every sense (except, of course, that it is a mineral fiber). It has the fineness, the resiliency and the effective insulation value usually associated with wool. In addition, it is non-combustible and non-hygroscopic—the fibers are not affected by moisture.

HOW FIBERGLAS IS MADE

Fiberglas is manufactured by drawing molten glass from a furnace or tank at a temperature close to 3,000° F. and feeding it through tiny openings into steam jets which draw it at tremendous speed into fibers so fine that a cubic foot of wool contains enough fiber length to reach half-way across the United States. The typical diameter of such fibers is from .0003 to .0004 of an inch, and for some types of wool even less.

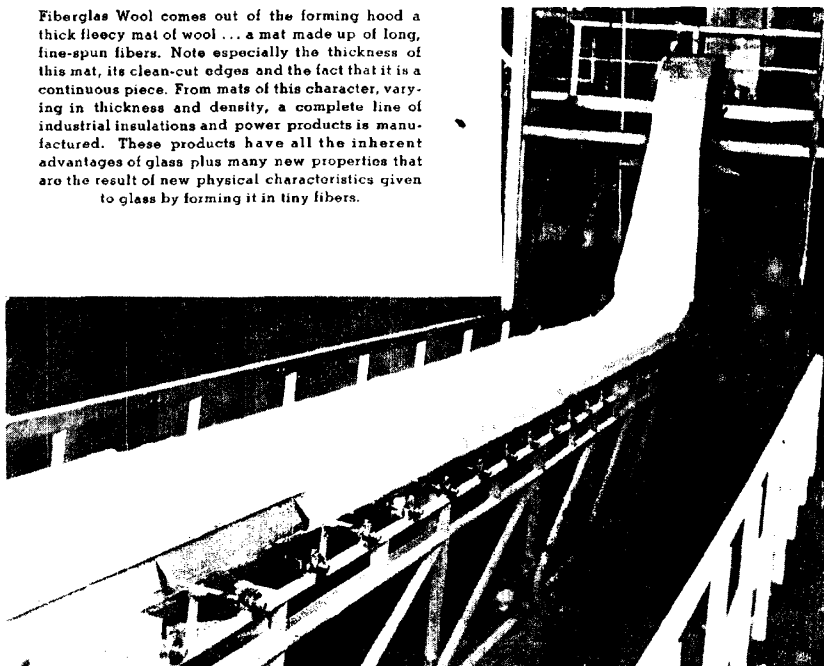
These tiny filaments are gathered in a forming hood and deposited on a moving belt, usually to a depth of several inches. A part of the process is an annealing treatment to increase flexibility and resiliency and to permit the forming of a better mat or bat of wool. From the forming and annealing

process the wool emerges in a well-formed, well-defined continuous ribbon subject to complete manufacturing control. This ribbon can be controlled as to width, thickness, diameter of fiber and other qualities so as to permit the manufacture of a vast group of high-efficiency insulations . . . insulations which, because of their unique advantages, have built up wide acceptance throughout the construction and industrial fields.

ADVANTAGES OF FIBERGLAS

QUALITY CLOSELY CONTROLLED—Fiberglas insulation differs from most other types of wool principally in its high ratio of fiberized material (it is relatively free from unfiberized material) and in its unusual fiber length. This freedom from non-insulating material permits closer control of quality and wider application of the basic fiber to industrial uses.

Fiberglas Wool comes out of the forming hood a thick fleecy mat of wool . . . a mat made up of long, fine-spun fibers. Note especially the thickness of this mat, its clean-cut edges and the fact that it is a continuous piece. From mats of this character, varying in thickness and density, a complete line of industrial insulations and power products is manufactured. These products have all the inherent advantages of glass plus many new properties that are the result of new physical characteristics given to glass by forming it in tiny fibers.



Industrial Insulation Products Division
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This illustrates the resilient feature of Fiberglas Wool, a high resiliency that is due to the fact that Fiberglas is a true wool, made of long, stout fibers of extremely small diameter.



Note that release of pressure on Fiberglas Wool is followed by expansion. Because of the resiliency of its fibers, the wool approximates its original shape and position. This is important to the user because it means that products made of this wool have a natural tendency to maintain their shape and position . . . thus prolonging their life.

HIGHLY EFFICIENT—Fiberglas wool at a density of $1\frac{1}{2}$ lb. to the cubic foot is rated by responsible laboratories as having a conductivity coefficient of .266. This places it among the most efficient of commercial insulating materials used in its field.

FIREPROOF The fibers of Fiberglas insulation will not support combustion. Because they are non-combustible they permit the manufacture of fireproof insulating materials.

NON-HYGROSCOPIC The fibers of Fiberglas are as impervious to water as a pane of glass. They do not absorb moisture and therefore do not change their own characteristics with changes in humidity. Furthermore, tests on Fiberglas wool have shown a much lower moisture absorption than other types of wool subjected to the same tests. Exposure to a saturated atmosphere for a period of 240 hours has shown a negligible absorption of water by Fiberglas Wool.

RESILIENT Long fiber and comparative freedom from unfiberized material help to make Fiberglas a highly resilient wool. This resiliency in turn makes for permanence and consistent insulating efficiency.

CHEMICALLY AND PHYSICALLY STABLE—Jolting and vibration tend to bring the resilient feature of Fiberglas into play increasing the bulk of the material. This works directly against settling. Fiberglas also has unusual chemical stability. The fibers are not only unaffected by water, as mentioned earlier, but

they are immune to the action of most chemicals. This is important in uses where the air is laden with acid-forming coal gases.

LIGHT WEIGHT The almost complete conversion of all raw material of Fiberglas into efficient insulating fiber relieves the resultant product of non-insulative material and therefore gives it the advantage of unusual light weight. Since it is the fiber which holds captive air and actually creates the insulative value of wool, Fiberglas insulation is designed for maximum efficiency. Its principle of complete utilization of the glass which goes into it produces maximum efficiency and avoids complications which may result from the presence of non-insulating materials.

FLEXIBLE All of the qualities mentioned above help to give Fiberglas great flexibility . . . flexibility in the sense that its

outstanding qualities adapt themselves to the solution of an almost endless variety of insulation problems. These pages are devoted to power products . . . insulating blankets. In them you may very probably find a solution to your insulation problem. If you do not, if you have a special problem which requires engineering to adapt wool to your use, the Owens-Illinois Glass Company invites you to consult with the engineering staff of its Industrial and Structural Products Division.



This photograph illustrates a distinctive feature of Fiberglas wool . . . long, fine-spun fibers relatively free from non-fiberized and non-insulating matter. Here is the ideal raw material for the manufacture of quality insulations.

Industrial and Structural Products Division

OWENS-ILLINOIS GLASS COMPANY • TOLSON, MD.

INSULATING BLANKETS

OWENS-ILLINOIS
Fiberglas

FIBERGLAS INSULATING BLANKETS are manufactured with resilient layers of long, flexible, intertwined glass fibers fastened on one side or both sides to a variety of facing materials. Two types of blankets are manufactured according to specifications which offer particular advantages in each of two

temperature ranges: No. 60 Blanket, up to 600°; and No. 90, 600° to 1000°. Special blankets are available for applications that require special fabrication or resistance to unusual temperatures. Write Owens-Illinois Glass Company, Toledo, Ohio for information on blankets of special size or design.

STYLE, DESCRIPTION AND FACING MATERIAL

HH	Hexagonal wire (poultry mesh) facing both sides.	RATL	$\frac{3}{8}$ " rib lath (rib turned in) and metal lath.
* HO	Hexagonal wire (poultry mesh) facing one side only.	ARRH	$\frac{3}{4}$ " rib lath (rib turned out) and hexagonal wire.
HL	Hexagonal wire facing one side, expanded metal lath on other side.	RARH	$\frac{3}{4}$ " rib lath (rib turned in) and hexagonal wire.
* LO	Expanded metal lath facing one side only.	* ARRO	$\frac{3}{4}$ " rib lath (rib turned out) one face only.
LL	Expanded metal lath facing both sides.	* RARO	$\frac{3}{4}$ " rib lath (rib turned in) one face only.
* ATRO	$\frac{3}{8}$ " rib lath (rib turned out), one face only.	ARRL	$\frac{3}{4}$ " rib lath (rib turned out) and metal lath.
* RATO	$\frac{3}{8}$ " rib lath (rib turned in), one face only.	RARL	$\frac{3}{4}$ " rib lath (rib turned in) and metal lath.
ATRH	$\frac{3}{8}$ " rib lath (rib turned out) and hexagonal wire.	RAR	$\frac{3}{4}$ " rib lath on both sides (specify position of ribs).
RATH	$\frac{3}{8}$ " rib lath (rib turned in) and hexagonal wire.	THICKNESS —From 1" to 6"—increasing by $\frac{1}{2}$ " increments.	
ATRL	$\frac{3}{8}$ " rib lath (rib turned out) and metal lath.	SIZE —Standard blankets are 2' x 8' and 2' x 4'.	

* Featured construction of Owens-Illinois Fiberglas Metal Mesh Blankets.

FIBERGLAS METAL MESH BLANKETS—LIST PRICES PER SQ. FT.

	HH	HL	LL	Note 1 ATRH-RATH ATRL-RATL ATRO-RATO	Note 1 ARRH-RARH ARRO-RARO	Note 2 ARRL RARL RAR 2 Sides	Asbestos Paper 1 Side or 2	Screen Cloth 1 Side or 2
1"	\$.40	\$.45	\$.55	\$.60	\$.70	\$.75	\$.65	\$.60
1½"	.50	.60	.65	.70	.80	.90	.75	.70
2"	.60	.70	.75	.80	.90	1.00	.85	.80
2½"	.70	.80	.85	.90	1.00	1.10	.95	
3"	.80	.90	.95	1.00	1.10	1.20	1.05	
3½"	.88	.98	1.03	1.08	1.18	1.28	1.13	
4"	.95	1.05	1.10	1.15	1.25	1.35	1.20	
4½"	1.03	1.13	1.18	1.23	1.35	1.45		
5"	1.10	1.20	1.25	1.30	1.45	1.55		
5½"	1.18	1.28	1.33	1.38	1.55	1.65		
6"	1.25	1.35	1.40	1.45	1.65	1.75		

NOTE 1—Provision has been made in the fabrication symbols to indicate the position of the rib in $\frac{3}{4}$ -in. rib blankets. Indicate the correct specifications by using the corresponding symbol.

NOTE 2—Blankets having $\frac{3}{4}$ -in. rib lath both sides may be manufactured with the ribs at right angles if so specified. Also see Note 1 above.

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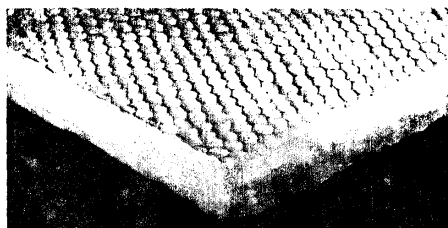
OWENS-ILLINOIS
Fiberglas

METAL MESH BLANKETS

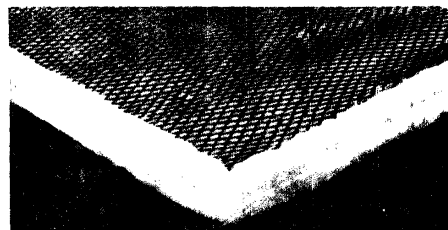
(#60—To 600°F #90—600° To 1000°F)



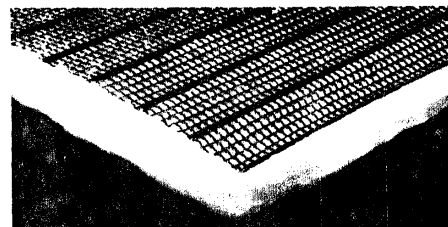
O Facing—Metal facing omitted on one side.



H Facing—Hexagonal or Chicken Wire.



L Facing—Copper-bearing Expanded Metal Lath.



R Facing—Copper-bearing Rib Lath.

The above materials are combined to form the many styles listed on the preceding page.

"O" FACING—An unusual feature of Fiberglas Insulating Blankets. This construction is possible because the long fibers of Figerglas knit the blanket together so ruggedly that the usual metal facing is unnecessary. Recommended for use where a resilient surface is required to conform to such irregularities as laps, bolt and rivet heads and to retain a smooth finish.

"H" FACING The conventional hexagonal mesh or chicken wire facing. Recommended as a support to prevent any movement of the blanket in a panel. "H" style Fiberglas blankets are the most flexible blankets available for bending or fitting to irregular surfaces.

"L" FACING The expanded metal lath facing. This is the ideal base for an insulating or finishing cement. Recommended for use on large flat or curved surfaces. LO Blankets are most popular and have proved their general utility in most industrial applications.

"R" FACING Hi-Rib metal lath facing with $\frac{3}{8}$ " or $\frac{1}{2}$ " rib. Recommended for use where maximum rigidity is required. Blankets are fabricated with the rib turned either to the outside or inside. The rib turned out will provide air space between the insulation and the hot surface, an advantage utilized in insulating steel breeching shells.

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PLAIN AND SEWED BLANKETS

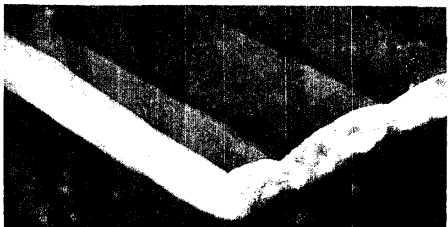
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Strips and Bats of all sizes available.



Fiberglas Flameproof Muslin Blanket.



SISALKRAFT BLANKET—One of many paper facings.



Typical Special Blanket for Manufacturers

PLAIN STRIPS OR BATS Fiberglas insulation is offered in strip or bat form cut to exact size for assembly in stoves, ovens or panels without trimming. Available in all sizes and shapes to meet any insulation requirement.

CANVAS OR MUSLIN FACINGS Fiberglas Insulation sewed between various grades of muslin or canvas. Recommended for insulating buses, modern streamlined railway cars and airplanes. Blankets are available in flameproof or treated fabrics to withstand numerous service conditions. Manufactured in any length and in widths to 10 feet, in thicknesses to four inches.

PAPER FACINGS Fiberglas Insulation sewed between paper facings. Recommended for use in refrigerator cars or equipment exposed to excessive moisture. Available in Sisalkraft, plain kraft, asphalt-treated kraft and other types of paper. Manufactured in any length and in widths to 10 feet in thicknesses to four inches.

SPECIAL FABRICATIONS Fiberglas Insulating Blanket sewed on a special canvas. Developed to provide an insulating jacket easily applied in the field to a boiler, tank or heater. Usually distributed by the equipment manufacturer as a profitable accessory item in his line.