The background of the slide is a light gray gradient, decorated with numerous realistic water droplets of various sizes. Some droplets are large and prominent, while others are small and scattered. They are rendered with soft shadows and highlights, giving them a three-dimensional appearance.

AIRFRAME TEAM BY VIVIAN MWANGI & MARK ODHIAMBO

TASK PROGRESS P

RESENTATION

TASKS

- MATERIAL SELECTION
- COST ANALYSIS
- TIME PLAN
- FACTORS TO CONSIDER & LIMITATIONS
- FABRICATION PROCESS

MATERIAL SELECTION

- FIBRE GLASS
- GLASS FIBRE REINFORCED PLASTIC WAS SELECTED TO BE USED THE INTENDED FIBRE GLASS WAS G-12 BUT THE ONE IN THE MARKET AVAILABLE WAS CHOPP STRAND MAT.

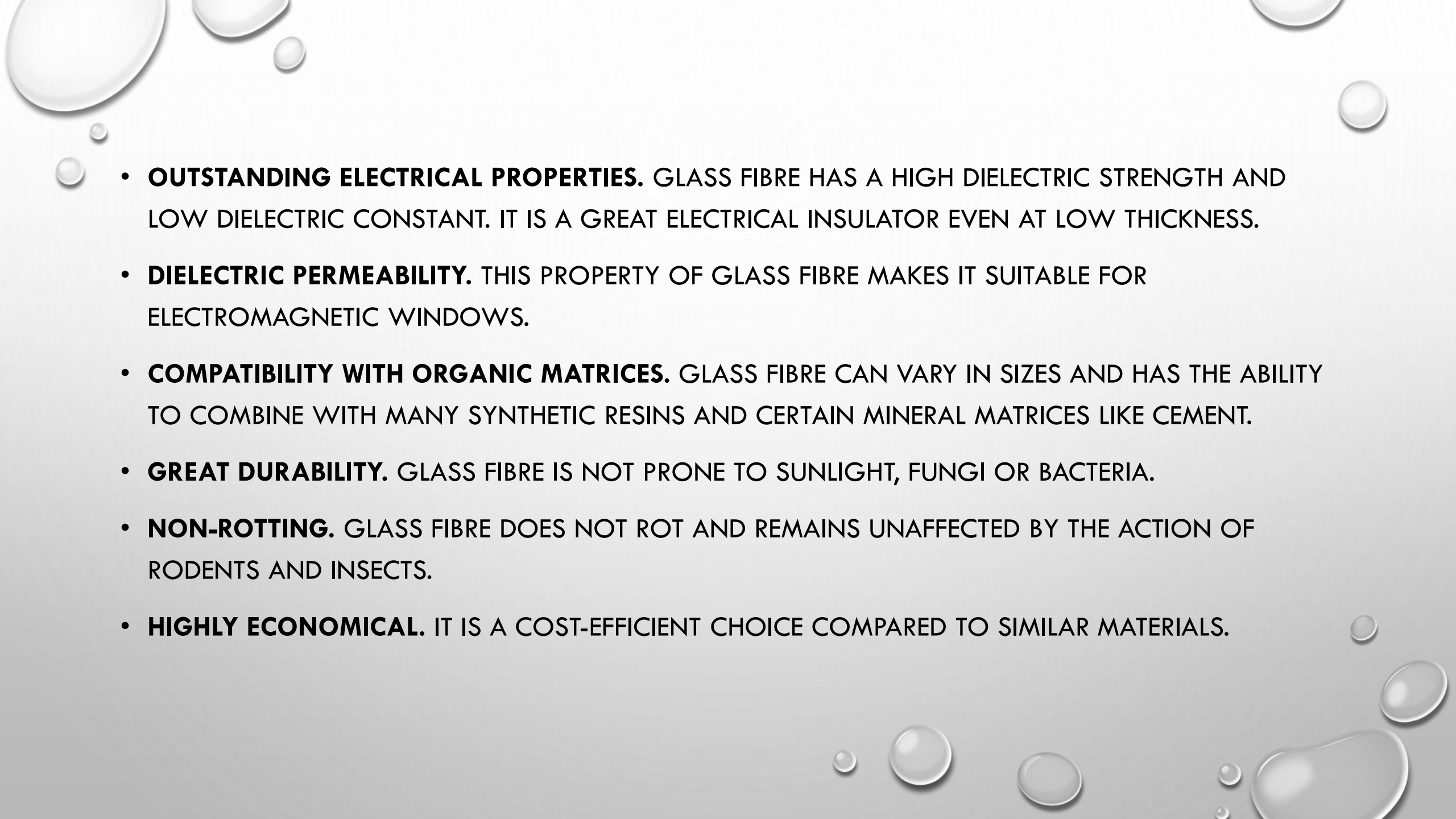


Fiberglass Mat

Chopped strand mat is made by spreading chopped roving around 50mm in length, then com...

PROPERTIES OF FIBREGLASS

- **HIGH TENSILE STRENGTH.** GLASS HAS GREATER TENSILE STRENGTH THAN STEEL WIRE OF THE SAME DIAMETER, AT A LOWER WEIGHT.
- **DIMENSIONAL STABILITY.** GLASS FIBRE IS NOT SENSITIVE TO VARIATIONS IN TEMPERATURE AND HYGROMETRY. IT HAS A LOW COEFFICIENT OF LINEAR EXPANSION.
- **HIGH HEAT RESISTANCE.** GLASS FABRICS RETAIN 50% OF ROOM TEMPERATURE TENSILE STRENGTH AT 370°C, 25% AT 480°C, A SOFTENING POINT OF 845°C AND A MELTING POINT OF 1,135°C.
- **GOOD THERMAL CONDUCTIVITY.** GLASS FIBRES ARE GREAT THERMAL INSULATORS BECAUSE OF THEIR HIGH RATIO OF SURFACE AREA TO WEIGHT. THIS PROPERTY MAKES IT HIGHLY USEFUL IN THE BUILDING INDUSTRY.
- **GREAT FIRE RESISTANCE.** SINCE GLASS FIBRE IS A MINERAL MATERIAL, IT IS NATURALLY INCOMBUSTIBLE. IT DOES NOT PROPAGATE OR SUPPORT A FLAME. IT DOES NOT EMIT SMOKE OR TOXIC PRODUCTS WHEN EXPOSED TO HEAT.
- **GOOD CHEMICAL RESISTANCE.** GLASS FIBRE IS HIGHLY RESISTANT TO THE ATTACK BY MOST CHEMICALS.

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- **OUTSTANDING ELECTRICAL PROPERTIES.** GLASS FIBRE HAS A HIGH DIELECTRIC STRENGTH AND LOW DIELECTRIC CONSTANT. IT IS A GREAT ELECTRICAL INSULATOR EVEN AT LOW THICKNESS.
 - **DIELECTRIC PERMEABILITY.** THIS PROPERTY OF GLASS FIBRE MAKES IT SUITABLE FOR ELECTROMAGNETIC WINDOWS.
 - **COMPATIBILITY WITH ORGANIC MATRICES.** GLASS FIBRE CAN VARY IN SIZES AND HAS THE ABILITY TO COMBINE WITH MANY SYNTHETIC RESINS AND CERTAIN MINERAL MATRICES LIKE CEMENT.
 - **GREAT DURABILITY.** GLASS FIBRE IS NOT PRONE TO SUNLIGHT, FUNGI OR BACTERIA.
 - **NON-ROTTING.** GLASS FIBRE DOES NOT ROT AND REMAINS UNAFFECTED BY THE ACTION OF RODENTS AND INSECTS.
 - **HIGHLY ECONOMICAL.** IT IS A COST-EFFICIENT CHOICE COMPARED TO SIMILAR MATERIALS.

HOW TO USE FIBREGLASS.

- **1. CREATE AND PREPARE THE MOULD.** HAVE THE MOULD READY BEFORE PREPARING THE FIBREGLASS APPLICATION. THIS INCLUDES ENSURING ALL THE PIECES ARE CLEAN, SMOOTH AND READY FOR APPLICATION. TO ENSURE EASY REMOVAL, APPLY WAX PAPER OVER THE ENTIRE MOULD.
- **2. PREPARE FIBREGLASS CLOTH FOR APPLICATION.** CUT ANY FIBREGLASS CLOTH INTO APPROPRIATE SIZES TO COVER THE MOULD. ENSURE THERE IS ADDITIONAL SPACE LEFT FOR OVERLAP, WHICH WILL HELP KEEP THE FINISHED RESULT STRONG AND DURABLE.
- **3. MIX THE FIBREGLASS AND RESIN.** FOLLOWING THE PACKAGING INSTRUCTIONS, CAREFULLY MEASURE OUT THE PROPER AMOUNT OF RESIN AND HARDENER INTO THE METAL BOWL. USING THE PAINT STICK, THOROUGHLY MIX THE SOLUTION, TAKING CARE TO GET THE SIDES AND BOTTOM OF THE CONTAINER.

- **4. PLACE THE FIBREGLASS ONTO THE MOULD AND APPLY THE RESIN MIXTURE.** USING A DISPOSABLE PAINTBRUSH, APPLY A COAT OF THE RESIN MIXTURE LIBERALLY ON THE FIBREGLASS. PAY CAREFUL ATTENTION TO THE CORNERS AND ANY OTHER WEAK SPOTS THAT MIGHT BE MISSED. CONTINUE THIS PROCESS UNTIL THE ENTIRE AREA HAS BEEN COVERED.
- **5. REPEAT THE APPLICATION PROCESS UNTIL THE DESIRED THICKNESS IS ACHIEVED.** TAKE THE TIME TO ENSURE EVERY LAYER IS PLACED AT A DIFFERENT DIRECTION FOR OPTIMAL STRENGTH IN THE FINISHED PRODUCT. ALLOW THE APPLICATION TO COMPLETELY DRY AFTER COMPLETING THE LAST LAYER.
- **6. COAT THE ENTIRE PROCESS WITH A SMOOTH COAT OF RESIN.**
- **7. REMOVE THE MOULD FROM THE FINALIZED FIBREGLASS FORM.** REMOVE AND WAX PAPER FROM THE FINAL PRODUCT.

MOLD REQUIRED.

- CRADLE
- NOSE CONE
- FIN(STILL IN DISCUSSION.)

COST ANALYSIS.

- SUPPLIER: SPECIALIZED FIBREGLASS
- RESIN 500KSH/KG MIN ORDER 5KG
- CATALYST 1310KSH/KG
- CHOP STRAND MAT 300GSM/400GSM 420KSH/KG MIN ORDER 5KG
- GLOVES
- LAMINATING ROLLER
- ACETONE
- PAINTBRUSH
- EPOXY

TIME PLAN.

- WEEK 1-MATERIAL SELECTION, ANALYSIS AND COST
- WEEK 2-DESIGN AND SIMULATION.
- WEEK 3-SIMULATION CORRECTIONS.
- WEEK 4-RECOVERY SYSTEM.
- WEEK 5-ASSEMBLY AND FABRICATION.
- WEEK 6-ASSEMBLY AND FABRICATION.
- WEEK 7-FINALISATION.
- WEEK 8-TAKE OFF.
- PRONE TO CHANGE AS PER THE SITUATION.