GLOSSARY

BLISTERING

A phenomenom which occurs in boat hulls because the materials used to manufacture the hulls is water permeable (generally FRP). The laminate absorbs moisture which collects on the surface, intermediately or deep. Eventually, the pressure from this water buildup is high enough to form bulges in the surface.

B-STAGE

Intermediate stage of curing. Not yet fully cured. Will not flow, but will yield to pressure.

COHESION

The state in which the particles of an adhesive are held together.

COMPOSITE

A combination of materials that result in an end product with characteristics superior to any one of the elements singly.

CORE MATERIALS

The central member of a sandwich construction. Normally low in density, light weight material used to separate structural skins. Typically weight is expressed in pounds per cubic foot.

CURE

The change from liquid to solid caused by chemical reaction of the components of an adhesive.

FIBER CONTENT

The amount of fiber present in a composite.

FIBERGLASS

One of the oldest, strongest, and lowest cost reinforcement materials of all fibers today. Does not burn, shrink, stretch, or absorb moisture. The fibers are available in woven and non-woven forms.

FIBER REINFORCED PLASTIC (FRP):

A general term for a composite that is reinforced with cloth, mat, strands, or any other fiber form and resin.

FILLERS

Materials which are added to resins or gel coats for special flow characteristics, to extend volume, or to add strength to the article being produced.

HAND LAY-UP

Refers to prewetting mixed resin using a brush, roller, or squeegee. The fabric product is placed over or into the resin-wet open mold surface and resin is again applied as necessary to achieve a totally wet laminate. Successive laminates and or core materials are added into a designed schedule.

HEAT DEFLECTION TEMPERATURE (HDT)

The temperature at which a material will begin to soften and deflect under load.

LAMINATE

Product built up by bonding two or more layers of materials.

MICROBALLOONS

Tiny hollow spheres made from various inert substances, i.e. glass. Mixed with resin, microballoons increase the volume and make the cured resin easier to sand.

PRIMARY BONDING

Bonding situation where laminate is completed in one continuous cycle without total curing of intermediate plies.Primary bonding is advantageous over secondary bonds as interlaminar properties are enhanced when a chemical as well as a mechanical bond is present. Sometimes the part size, thickness or manufacturing sequence preclude a continuous lay-up, thus requiring the application of wet plies over a previously cured laminate, known as secondary bonding.

POST CURE

Heating solid during curing time to increase physical properties.

POT LIFE

Amount of time between the mixing and gel stage in which an epoxy remains usable in the pot at 77oF. Pot Life for epoxies depends on temperature, shape of container, and hardener used. Pot Life is different from Working Time.

PRINT THROUGH

Teleqraphing of the image of glass strands throuqh the gel coat film. A visual phenomena caused by low Tg temperatures when air in entrapped in the glass fibers.

SECONDARY BONDING

The joining of two or more already cured composite parts using adhesives. The only chemical or thermal reaction occurring is the curng of the adhesive itself.

STRENGTH

The measure of the stress required to deform or break a material.

TG

The temperature at which a thermoset resin will begin to loose stiffness properties.

THERMOSETTING

A resin that polymerizes when subjected to heat. Epoxies are thermosetting.

THIN FILM SET

The surface becomes tack free. A thumb print will show on the surface, but no epoxy will come off onto your thumb (Please wear gloves!)

TOUGHNESS

A measure of the energy required to break a material.

VISCOSITY

Thickness of a liquid. Honey is very viscous, water is not. Expressed in cengpoise (cps). The viscosity of water is 1 cps. Higher numbers represent thicker material.

WET LAY-UP

This method is normally used for building fiberglass boats. Dry glass reinforcing mat, or cloth is laid out on the inside of the mold and covered with resin from a bucket or spray gun. A roller is then used to press the resin into the glass and to work out air bubbles.

WORKING TIME

Length of time during which a formula remains workable after it has been applied.

Remember - always use organic respirators and gloves when handling epoxies and fillers.