

INTRO TO THERMOPLASTICS

“...And Sewing Is Half The Battle!”



- ❖ RECOMMENDED EQUIPMENT
 - Heat gun (required)
 - Heat-resistant gloves
 - Silicone mat
 - Silicone finger protectors
- ❖ WORKING WITH THERMOPLASTICS
 - Protect your work surface – some plastics are very sticky!
 - Always have a trivet or heat-resistant surface to place heat gun on between uses
 - Protect your skin – melted plastics can burn you
 - Don't overheat!
- ❖ HAND-FORMED THERMOPLASTICS ARE GOOD FOR...
 - Jewelry
 - Individual armor pieces
 - Structural reinforcement of other materials
 - Items with compound curves or organic shapes
 - Small props or prop components
- ❖ HAND-FORMED THERMOPLASTICS ARE *NOT* GOOD FOR...
 - Large, unreinforced areas
 - Flat planar shapes
 - Anything that needs to be heat-resistant (or will be stored in a hot area)
- ❖ WORBLA'S FINEST ART
 - Activation point: ~195° F
 - Supported by particulate embedded in plastic
 - Thin and flexible
 - Can be sculpted, molded, or built up like clay
 - Self-adhesive (one side is extra sticky; both sides work)
 - Finished product surface can have a sandpaper texture; may need smoothing
 - Price: \$86 per sheet (39" x 59")
- ❖ WORBLA'S BLACK ART
 - Activation point: ~200° F
 - Smoother surface than Worbla's Finest Art, but behaves almost the same in practice
 - Requires slightly more heating to be self-adhesive
 - Slightly more difficult to sculpt by hand
 - Price: \$88 per sheet (39" x 59")
- ❖ WORBLA'S TRANSPARENT
 - Activation point: ~250° F
 - No internal support
 - Thin and flexible
 - Can be sculpted or pressed into molds
 - Is *NOT* self-adhesive, but can be glued
 - Can be tinted with additional materials (polyester dye, etc.; tutorials available online)
 - Price: \$88 per sheet (39" x 59")
- ❖ WORBLA'S MESH ART
 - Activation point: ~175-195° F

- Internal support mesh is plastic, not fiber
- Thin and flexible; retains flexibility after forming
- Can be sculpted over objects or pressed into molds
- Is self-adhesive
- Smoother surface finish than Wonderflex (less priming required)
- Slightly more flexible than Wonderflex
- Price: \$82 per sheet (39" x 59")

❖ WONDERFLEX

- Activation point: ~150° F
- Supported by a fiber mesh embedded in the plastic
- Thin and flexible; retains some flexibility, but curved pieces are more rigid after forming
- Is self-adhesive
- Mesh texture can be visible in finished product; surface smoothing sometimes required
- Slightly sturdier than Worbla's Mesh Art
- Price: \$67 per sheet (40" x 55")

❖ SIDE NOTE: EVA FOAM

- EVA = Ethylene Vinyl Acetate
- a.k.a. craft foam, "Fun Foam," "Foamies." Also used for flip-flops, visors, anti-fatigue mats, etc.
- Thermoformable, but remains soft and flexible when cool
- Sticks to heated Wonderflex and Worbla on contact
- Great for adding dimension, support, or padding

❖ SINTRA / KOMATEX (PVC FOAM BOARD)

- Activation point: softens ~150° F for 1mm, up to 350° F for 6mm
- Can be difficult to hand-form
- Self-supporting foam structure
- If over-heated, foam will compress, leaving dents or fingerprints
- Thick and rigid – comes in 1mm, 2mm, 3mm, 6mm thicknesses (though 1mm and 2mm can be more difficult to find)
- Not self-adhesive, but other thermoplastics stick to it
- Price: \$15-\$25 per sheet (24" x 48"), depending on thickness.
- **USE EXTREME CAUTION WHEN HEAT-FORMING!**
 - PVC releases toxic gas (hydrogen chloride) when heated
 - Hydrogen chloride + water = hydrochloric acid
 - YOUR EYES AND LUNGS CONTAIN WATER
 - ALWAYS use a fume-rated respirator, eye protection, & gloves
 - Use in a well-ventilated area (outdoors, or with a fume hood)

❖ THIBRA

- Activation point ~140 ° F
- Smoother surface than Worbla or Wonderflex – does not need primed before painting
- VERY stretchy when heated – chewing gum texture
- Picks up tons of detail (beware fingerprints!)
- Sticks **aggressively** to other plastics
- Price: \$80 per sheet (54" x 43")

❖ TERRAFLEX

- Comparable to Worbla's Finest Art in performance
 - Not *quite* as sculptable
 - Very similar texture, though Terraflex is slightly smoother
- Price: \$50 per sheet (24" x 36")
- Sold exclusively by Tandy Leather

❖ SAFETY

- Improperly managed heat guns can burn you and set fire to your hair or clothing. **USE EXTREME CAUTION.**
- When the heat gun is not in your hand, it should be resting on a metal rack or heat-resistant surface.
- Be mindful of **where the heat gun is aiming** while you are heating your plastic.