SOFTWARE/**PRODUCT**/**FINISHING**

OVERVIEW

The normal surface finish of FDM® parts is suitable for most purposes but in applications where a different finish is required, media blasting is an inexpensive and quick solution. It can be used to achieve the final surface appearance or as a preliminary step for subsequent finishing operations.

Common applications where media blasting is applicable:

• Smoothing and polishing for:

- Concept models

- Prototypes

- End-use parts

• Surface preparation such as texturing and etching for:

- Painting

- Electroplating (Figure 1)

- Mold masters

1. OPTIONS

1.1. Blast Media: Select a blast media with the desired level of abrasiveness.

> **NOTE:** Blasting media is commonly rated mild to harsh based on a metal substrate. The same media will be more aggressive on plastics.

• **Aluminum oxide: harshest**
Aluminum oxide is the most aggressive blast media for smoothing an FDM part and can also be used to texturize or etch parts. This media is ideal when preparing a surface for electroplating.

• **Plastic: mild to harsh**
For surface smoothing, this finely ground plastic media is recommended. This media is available with abrasiveness ratings from mild to harsh (Figure 2).

• **Sodium bicarbonate (soda): mildest**
Soda is ideal for converting a glossy finish, like that which results from a vapor smoothing operation, into a frosted, matte finish.

Reference materials:
• Processes
- Best Practice: Solvent Smoothing

Figure 1: Electroplated FDM part; media blasting can be a preliminary step to prepare FDM parts for processes such as electroplating and painting.

Figure 2: Plastic blast media is recommended for smoothing the surface of FDM parts.

2. PROCESS

2.1. Prepare Part

STEP 1: Mask the areas of the part where a media-blasted surface is undesirable. Masked areas may include parting surfaces of tools or sharp, outside corners that could be rounded by media blasting.

2.2. Prepare Media Blaster

STEP 1: Load the desired blasting media.

STEP 2: Adjust the pressure. Start with a low pressure and gradually increase until it provides the desired results. However, do not exceed 207 kPa (30 psi) since higher pressures will produce divots on the part surface and cause the media to break down.

2.3. Media Blast Part

STEP 1: Place the part into the blasting chamber (Figure 3).

STEP 2: Position the spray gun at a 60° angle to the part surface.

STEP 3: Media blast the part using a continuous, sweeping motion similar to that for spray painting (Figure 4). To avoid damaging the part, use several light passes across the part's surfaces. Do not dwell in one area.

STEP 4: Inspect the part. If additional media blasting is needed, repeat Step 3.

STEP 5: Remove debris and blast media residue.

STEP 6: Media Blasting procedure complete (Figure 5).

Figure 3: Place the part inside the blast chamber.

Figure 4: Media blast using a continuous, sweeping motion.

Figure 5: Unfinished FDM part (left); finished media-blasted part with smooth surfaces (right).

3. SAFETY

Observe manufacturer's recommendations for safety, material handling and storage. This information can be found in the Safety Data Sheet (SDS).

ABABA

4. TOOLS & SUPPLIES

4.1. Equipment:

- Sand blaster or bead blaster
- Soda blaster
- Air compressor

4.2. Media:

- Aluminum oxide
- Plastic: POLYHARD® Type III or POLYPLUS® (US Technology Corp.)
- Soda: Flow Formula M (Armex®)

CONTACT:

To obtain more information on this application, contact:

Stratasys Application Engineering

1-855-693-0073 (U.S. toll-free)

+1 952-294-3888 (international)

ApplicationSupport@Stratasys.com