Version 1.0, October 2022

Press-E-Cast Material Best Practice

Desktop Health™

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Document Information

Legal Notice

Press-E-Cast Material Best Practice: PCAST-MBP-00012-Rev01-EN, October 2022

History of Changes

Date	Changes	Version
Oct-2022	Document creation	1.0

How to Use This Guide

This document serves as a comprehensive guide to prepare parts, post-process, and finish using Press-E-Cast material.

About Press-E-Cast

Identification

Press E-Cast is a wax-filled photopolymer material for the production of full anatomical crowns and bridges with extreme dimensional accuracy in X, Y and Z, as well as exceptional surface finish. Can also be used to print partial frameworks.
The burnout for parts 3D printed in Press-E-Cast is rapid, clean and ash-free, resulting in accurate, quality castings. With a moderate wax content, Press-E-Cast also delivers low thermal expansion during burnout.
Parts 3D printed in Press-E-Cast can be pressed into full contour ceramics.

Applicable Printers

This material is tested and approved for the following printers:

- Einstein
- Einstein Pro XL
- Envision One cDLM

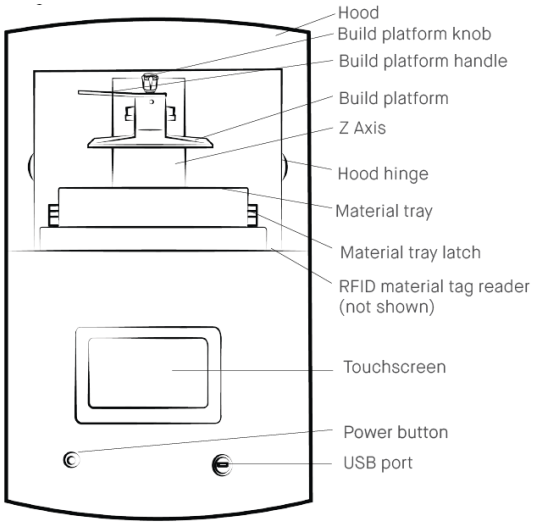

FIG 1. EINSTEIN FRONT VIEW

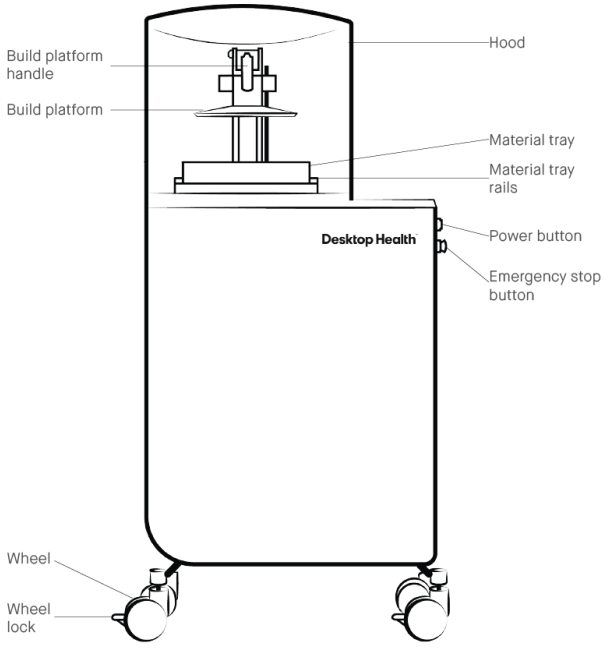

FIG 2. EINSTEIN PRO XL FRONT VIEW

Getting Started

Primary Supplies

The following supplies are required to print Press-E-Cast material:

- 99% isopropyl alcohol (IPA).
- Air compressor.
- Cone-shaped paint filter, *Starter Kit item.*
- Curing unit: Otoflash, *SAP Part # ACC-00-0007,* or PCA 4000 *SAP Part # ACC-06-1000*
- Dual Motion Bottle Roller, *SAP Part # ACC-26-1000 (110V) and ACC-26-1000 (220V).*
- Nitrile gloves.
- Material mixing cards.
- Paint scraper, *Starter Kit item.*
- Paint brush.
- Paper towels.
- Plastic funnel.
- Rubber spatula, *Starter Kit item.*
- Spray bottle with 99% IPA.
- Snips, precision blade, or similar tool.
- Storage container for material, sealable and opaque.
- Washing unit: PWA 2000, *SAP # ACC-22-2000*.

Capture Patient Data

A digital impression can be accomplished with a handheld intraoral scanner and CBCT scan, or with a traditional impression and a desktop box scanner.

Envision One RP Software is compatible with the universal .STL file format and is thus compatible with almost all dental CAD and model design software as well as digital design services. Models may be designed in-house or outsourced to a design partner.

Design Models for Press-E-Cast

Models printed in Press-E-Cast must have a minimum wall thickness of 0.5 mm.

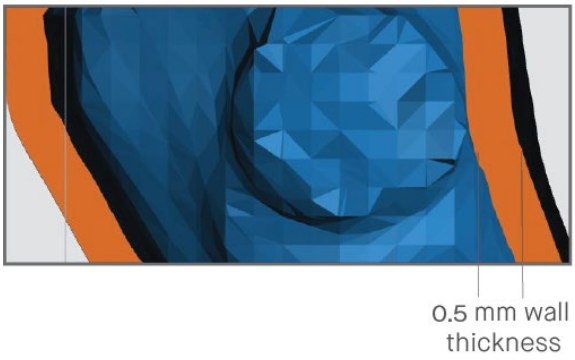

FIG 3. MODEL WALL THICKNESS

Important: The brackets must be thick enough not break by removing the supports.

Software

Orient Models Envision One RP Software

Parts must be built horizontally orientated to the platform, with supports connecting only to the occlusal or incisal surface e.g., to avoid manual post processing of the sides in direct contact with the mating surface.

- **Spacing:** place models a minimum of 1.5 mm apart.
- **Level at build platform:** Place supported models 4 mm from the build platform.
- **Resolution:** 50 µm Z resolution.

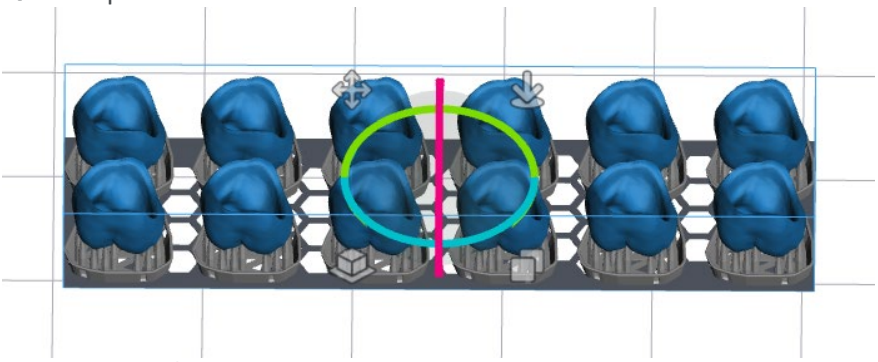

FIG 4. MODELS IN ENVISION ONE RP SOFTWARE

Support Models Envision One RP Software

All approved applications require supports. Always use the Press-E-Cast.ini support file for supports –

- **Minimum support base:** 1.0 mm
- **Minimum contact tip:** 0.45 mm
- **Minimum support beam height:** 4.0 mm

Print Preparation

Mix Material

Press-E-Cast material must be mixed in the material bottle prior to use:

1. Place the sealed material bottle on the Dual Motion Bottle Roller for a minimum of 60 minutes.
2. Wait for bubbles to subside before filling the material tray.
3. Mix material in the material tray gently with the rubber spatula from the Starter Kit before each print. The material should be a uniform color.
4. Preheat the material to de-crystallize the wax component of the Press-E-Cast material, if needed.

Ensure there are no small cured particles in the material tray. If found, then the material must be filtered using the plastic funnel, cone-shaped paint filter, and a spare material bottle. *See the* Knowledge Base *for filtering instructions.*

Fill Material Tray

Do not overfill the material tray. Overfilling can cause the material to overflow when the build platform moves down at the start of the print job.

To add more material to the printer, carefully pour material into the material tray between prints. Adding material while the print is paused, or during a print, will cause a small shift line in the model. *See the* Knowledge Base *for instructions adding material.*

Print with Press-E-Cast Material

To start the print, follow instructions in the printer's Operations and Maintenance Guide.

To remove the models from the build platform after the print is complete, follow instructions in the printer's Operations and Maintenance Guide. *See the* Knowledge Base *for the latest guide.*

Material Storage

Follow these instructions:

- Store the material at dark environment when not using it.
- Preheat the material before each print for better printing results and cool the material down after the print is finished
- Mix the material with material mixing card before starting a new job.
- Remove the material from the material tray and carefully pour it into the spare dark bottle

Post-Processing

Materials Safety

Safety data sheets (SDS) for materials used in the printing process are available either from ETEC or directly from suppliers. Read and understand the information provided in these documents prior to attempting to operate the printer or handle any media.

Warning!	**Fire hazard:** Some materials used for washing may be flammable. Do not wash parts in proximity of any potential ignition source. Washing or drying equipment must be approved for use with flammable solvents. Read SDS and contact EHS Representative.

Clean Printed Models

The PWA 2000 is the recommended parts washer, *Fig. 5*. Always wear gloves when handling uncured material and alcohol.

Important: Do not expose Press-E-Cast to alcohol for longer than 5 minutes. Excess exposure to alcohol may cause casting issues.

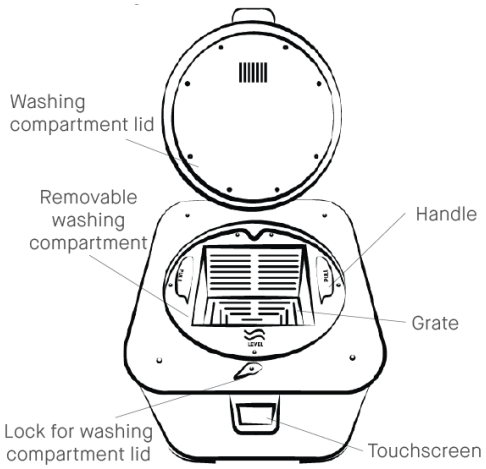

FIG 5. PWA 2000 FRONT VIEW

Getting started:

1. Open the washing compartment lid.
2. Lift the handle to raise the interior grate to the highest position.
3. Pour the 99% IPA into the washing compartment to just below the grate while it is in the lifted position.
4. Place the model on the grate and gently lower the handle to submerge the model in 99% IPA.
5. Close the washing compartment lid and lock in place.
6. Plug in the power cable to turn on the PWA-2000.

Clean models:

1. Using the touchscreen, select the **High** washing program. Set the timer to 00:03:00, or 3 minutes. Press **Start**.
   → *The PWA 2000 will immediately begin the set washing cycle.*
2. Remove the model as soon as the program is complete.
3. Spray the models with the spray bottle filled with 99% IPA.
4. Use compressed air to remove all IPA from the surface of the model as soon as possible.

Dry Models

Models must be completely dry before post curing –

1. Place the models on a clean paper towel lined surface.
2. Air dry in ambient room temperature / humidity for 10 min.

Post Cure Printed Models

Cure the models using the following method:

Otoflash: 2 cycles for 50 flashes, flip models between cycles.
See the Knowledge Base for instructions setting an Otoflash curing cycle.

PCA 4000: 1 Minute - 60° C - 100% Power.
See the Knowledge Base for instructions setting a PCA 4000 curing cycle.

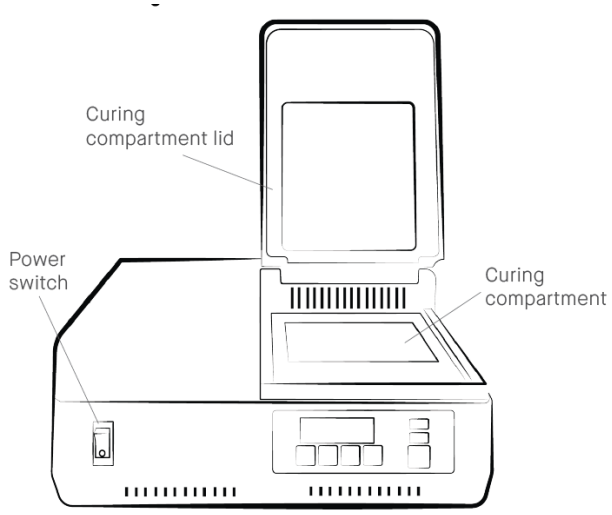

FIG 6. OTOFLASH FRONT VIEW

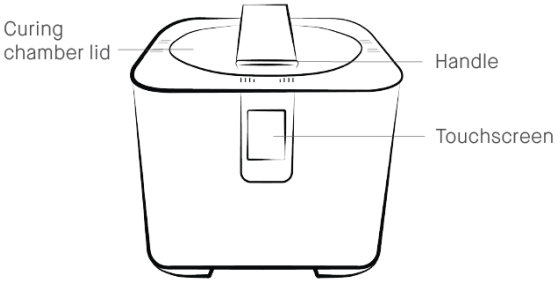

FIG 7. PCA 4000 FRONT VIEW

Place models into the curing unit with as much space between models as possible. Models should never touch one another while curing. Let models cool completely before handling them or starting the next cycle. Flip models between cycles for an even cure.

Important: Desktop Health does not support third-party curing units.

Important: For casting steps, follow instructions from the investment manufacturer.

Manufacturer

EnvisionTEC US LLC (ETEC)
A Desktop Metal Company
15162 Commerce Dr. S
Dearborn, MI 48120
www.etec.desktopmetal.com

Desktop Metal, Inc.
63 3rd Avenue
Burlington, MA 01803
www.desktopmetal.com

Desktop Health
c/o Desktop Metal, Inc.
63 3rd Avenue
Burlington, MA 01803
www.health.desktopmetal.com

EnvisionTec GmbH
Brusseler Str. 51
45968 Gladbeck
Germany

ExOne Operating, LLC
127 Industry Boulevard
North Huntingdon, PA 15642
www.exone.com

ExOne GmbH
Daimlerstrasse 22
86368 Gersthofen
Germany

ExOne KK
161-5 Haneo
Odawara-shi, Kanagawa
Japan 256-0804