

Cleaning PolyJet Parts with Sodium Hydroxide

An optional treatment of finished models, using inexpensive, commercially available Sodium Hydroxide diluted in water.

APPLICATIONS & BENEFITS

- Slightly improves surface finish, eliminates small amount of residue left on surface
- Improves transparency to some extent
- Makes separation of support model easier, especially for tight tolerance or moving parts
- For very complicated parts with longer support removal — greatly decreases time for WaterJet support removal

RECOMMENDATIONS ON WHEN TO USE

- For models requiring painting or silicon molds
- Any model where surface touch / feeling is key factor

HOW DOES IT WORK?

- The product to buy is pure Sodium Hydroxide (known also as caustic soda, or NaOH) – it is a chemical commonly used in commercially available products such as cleaners or to unblock drains
- Available in pure form any hardware store or DIY store
- It is recommended to replace the solution once a week so that cleaning is optimal
- Please note, all parts must still undergo WaterJet support removal before this cleaning
- Fine sandpaper can still be used for a glossier finish
- All handling of Sodium Hydroxide should be done according to local safety conditions

ANY SIDE EFFECTS?

- This soaking should not surpass two hours otherwise there is a risk of deformation
- For the large majority of models, there will be no effect on mechanical properties
- For models with thin walls <1 mm in Z direction (less so in X and Y), there may be slight deformation so these models should be soaked for a shorter time

MODEL CLEANING PROCEDURE

This cleaning procedure is intended as a surface preparation procedure, especially desirable, before sand blasting or painting:

This procedure requires the use of eyes protective goggles and hand latex gloves — Sodium Hydroxide solution is an alkaline (basic) solution that should not come in contact with eyes and skin (in case of accidental eyes or skin direct contact with the Sodium Hydroxide solution, immediately thoroughly clean the contacted area with running tap water)

- Remove the support material and clean the model as thoroughly as possible — the use of Objet's WaterJet is highly recommended
- Immerse the model into a 2% Sodium Hydroxide for approximately one–two hours
- Immediately rinse the model using running tap water. A second water jet cleaning at this moment is most recommended
- Wipe the water from the model using wiping paper and wait till the model is completely dry — otherwise, for faster drying, it is recommended to immerse the model in Isopropyl alcohol for a few seconds and let it to dry at room temperature for approximately half an hour

SURFACE PREPARATION SOLUTION

For a [1] liter solution:

- Place 20 gr Sodium Hydroxide directly into a ~1.5 liter plastic (Polyethylene, Polypropylene, etc) or a glass container
- Add water to complete 1000 gr (980 grams water + 20 gr sodium hydroxide)
- Gently stir until complete Sodium Hydroxide dissolution (about five minutes)
- Let the solution cool down to room temperature (the dissolution process of Sodium Hydroxide produces heat)
- The solution is ready and can be used to clean several models, depending on the models size

DISCLAIMER

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