RODIN® 3D Resin

A **Pac-Dent** Brand

TRUMODEL

Precision Resin for High-Accuracy Dental Model Printing and Prototyping

Instruction and Safety Information

Pac-Dent® Passion for Excellence

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TRUMODEL

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Precision Resin for High-Accuracy
Dental Model Printing and Prototyping

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Product Description

TruModel Resin is a high-performance, highly filled 3D printing resin designed for the fabrication of precise, dimensionally stable models. It provides excellent surface detail, accuracy, and thermal resistance, making it suitable for demanding applications that require stability during post-processing or thermoforming of external materials over printed models.

The resin is commonly used in dental laboratory and professional production environments to create study models, working models, removable dies, and transfer dies. In addition, the material may be used for general modeling and applications where high accuracy and heat resistance are required.

Printed parts produced using Rodin® TruModel Resin are extraoral, non-medical, and not intended for direct or indirect patient contact.

Product Variants:

- Rodin® TruModel Prime
- Rodin® TruModel Sand
- Rodin® TruModel Gray

All variants share identical printing, washing, curing, and handling instructions.

Material Composition

Rodin® TruModel Resin is comprised of;

- Monomer
- Oligomer
- Photoinitiator
- Photoinhibitor
- Pigment

Intended Applications

Rodin® TruModel Resin may be used for the fabrication of:

- Orthodontic models
- Dental working models
- Dental study models
- Removable dies
- Transfer dies
- General-purpose models and prototypes

Limitations and Use Restrictions

- This product is not a medical device
- Not intended to diagnose, prevent, monitor, treat, or alleviate disease or injury
- No direct or indirect patient contact
- Not for intraoral use
- Not for surgical guides, splints, or intraoral trays
- This product is not intended for use by children

Safety Information

Always consult the Safety Data Sheet (SDS) for the most complete information regarding hazards, handling, and disposal.

General Safety Warning

- Rodin® TruModel Resin contains methacrylate-based compounds. Individuals sensitive to methacrylate-based compounds may experience allergic reactions when exposed to uncured resin.
- Avoid direct skin contact with uncured material
- Ingestion: If swallowed, rinse mouth with water. Do not induce vomiting. Seek medical attention if symptoms occur

Recommended personal protective equipment (PPE)

When handling uncured resin:

- Protective Gloves
- Eye protection
- Protective clothing (Lab coat or apron)
- Closed-toed shoes
- Respiratory protection may be required in poorly ventilated environments or where local regulations mandate its use.

Design & Priniting Preparation

Design Considerations

Proper model design is essential to achieve dimensional accuracy, structural stability, and reliable performance when printing with Rodin® TruModel Resin. The following design recommendations are provided to support common modeling workflows.

Hollow Working and Study Models

Minimum Thickness: A minimum wall thickness of 3 mm is recommended to ensure structural integrity and to reduce the risk of delamination or deformation

Drainage Holes: Drainage holes should be incorporated into hollow designs to:

- Reduce vacuum forces during printing process
- Allow uncured resin escape, enabling effective cleaning and post-curing

Models for Thermoforming (e.g., aligner fabrication models or external forming models)

Solid Model Design: Solid model designs are recommended for models intended for thermoforming processes

- Helps prevent flexing or distortion during thermal vacuum forming
- Supports dimensional stability during downstream fabrication steps.
- Printed models are used solely as forming tools and are not intended for patient use or contact.

Validated Printing Parameters

Validated 3D Printers

For the most up-to-date list of validated printers and settings, refer to https://rodin-3d.com/validated-equipment-settings/

Orientation Considerations

Flat Side Down Orientation

Orientation Strategy: Position both upper and lower model designs with their flat sides facing down, directly onto the build plate.

Advantages

- Improved Dimensional Accuracy: This orientation helps maintain the true dimensions of the models, crucial for dental applications.
- Reduced Print Time: Direct contact with the build plate without the need for supports streamlines the printing process, leading to faster completion times.
- In many cases, this orientation allows printing without support structures

Perpendicular Orientation

Orientation Strategy: Align and support both upper and lower model designs in a perpendicular orientation relative to the build plate.

Advantages

- Increased number of models per print job: This orientation allows for a more efficient use of the build space, enabling the printing of a larger number of models in a single job.

Resin Preparation & Mixing

Mixing Importance of: Proper mixing ensures homogeneity of pigments and fillers, which is essential for consistent print quality.

Mixing Resin in the Vat:

- Gently mix with a silicone blade
- Re-suspend settled pigments
- Strain failed-print resin using a 50-micron mesh strainer

Preparing Resin from the Bottle:

- Stir thoroughly with a plastic spatula
- Alternatively, roll on an automated roller
  - 15 Minutes (regular use)
  - 1 hour if stored for more than one month

Printing Environment Conditions

LIGHT EXPOSURE

- Avoid UV and strong artificial light
- Store and operate away from direct sunlight
- Cover resin vats when not in use

TEMPRATURE CONTROL

- Recommended range: 4°C–25°C (40°F–75°F)
- Heated printing environments may be set up to 35°C (95°F)
- Gently warm cold resin while sealed to prevent moisture contamination

Post-Processing Instructions

Step 1: REMOVAL FROM PRINTER

- Remove build platform carefully
- Use a metal spatula perpendicular to the plate

Caution: Keep off-hand clear to prevent injury

Step 2: REMOVING EXCESS RESIN

- Use low-pressure compressed air to remove uncured resin from the model and build plate

Step 3: CLEANING MODELS

- Do not exceed 10 minutes total IPA exposure
- Clean details with a soft or medium toothbrush soaked in 99% IPA
- Continue until a matte finish is achieved

Validated Light Curing Parameters

Chroma Flash (Recommended)

- Total Flash Cycle Budget: **5000 cycles**

Dreve PCU LED N2

- Duration: **15 minutes**
- Intensity: **80%**

Ackuretta Curie

- Duration: **20 minutes**
- Settings: **P12, D10, BL ON**

Formlabs Form Cure

- Duration: **15 minutes**
- Temperature: **60°C**

Validated Equipment List:
https://rodin-3d.com/validated-equipment-settings/

Special Note: Post-curing with inert gas improves abrasion resistance.

Storage & Resin Handling

RESIN HANDLING AND TRANSTER

- Do not pour used or contaminated resin back into the original bottle
- Store only in original containers
- Avoid oxidation from aluminum build plates.

RESING VAT MANAGEMENT

- Use dedicated vats per resin type/shade
- Ensure vats are IPA-free before refilling

BOTTLE SEALING & CLEANLINESS

Bottle Sealing: Always keep resin bottles tightly sealed when not in use to prevent contamination and accidental light exposure

Cleanliness: Ensure resin tank, vats, and tools used for stirring or handling the resin are clean and free of debris.

STORAGE ENVIRONMENT

- Dark, dust-free environment
- Temperature: 4°C–25°C (40°F–75°F)

SHELF LIFE

- Follow manufacturer shelf-life guidance
- Inspect periodically and remix as needed

Disposal & Waste Management

DISPOSAL OF LIQUID RESIN

- Never dispose uncured resin
- Fully cure using sunlight or UV lamp before disposal

DISPOSAL OF SOLID RESIN

- Ensure fully cured
- Dispose as solid waste per local regulations

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PERSONAL PROTECTIVE EQUIPMENT (PPE) AND CLEANING MATERIAL

Gloves and Masks: Used gloves, masks, and any other PPE contaminated with resin should be disposed of in accordance with hazardous waste regulations.

Cleaning Materials: Materials used to clean resin spills or tools, such as paper towels or cloths, should also be cured if saturated with uncured resin before disposal.

Legal Information

Legal Disclaimer

Rodin® TruModel Resin is intended for extraoral, non-medical modeling and prototyping applications only. The product must be used strictly in accordance with the instructions and safety information provided.

Pac-Dent Inc. shall not be responsible for product performance or safety where the resin is used outside its intended applications, used with unvalidated equipment, or handled contrary to the provided instructions and warnings.

The manufacturer's liability, if any, shall be limited to the replacement of the product or the purchase price paid. Nothing in this disclaimer limits or excludes any rights that cannot be limited or excluded under applicable law.

The user remains responsible for compliance with all applicable local safety, environmental, and occupational regulations.

Manufacturer & EU Responsible Person Information

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