

Inkjet Photopolymer Portfolio for MultiJet, PolyJet and Related Platforms

Mechanical and application branches requiring printer-model and formulation-specific validation

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Highlights

- Compatibility is determined at printer-model, printhead and validated-configuration level.
- A jetting window includes viscosity, surface tension, waveform, temperature, drop formation, recirculation, stability and cure.
- Not every combination of mechanical, application and composition attributes exists or is validated.
- Monomer-free and bio-derived content are separate from biological suitability.
- Dental and medical uses require product-specific and finished-device evidence.

Abstract

The inkjet portfolio contains grades across multiple mechanical envelopes and specialized dental, engineering, microfluidic and castable branches.

Compatibility is established at printer-model and printhead level. Each formulation requires a validated jetting window plus mechanical and functional testing of the printed and post-processed part.

Monomer-free and bio-derived content are composition attributes, not biological-safety credentials. Study models, guides, aligners and other workflows have different intended purposes and evidence requirements.

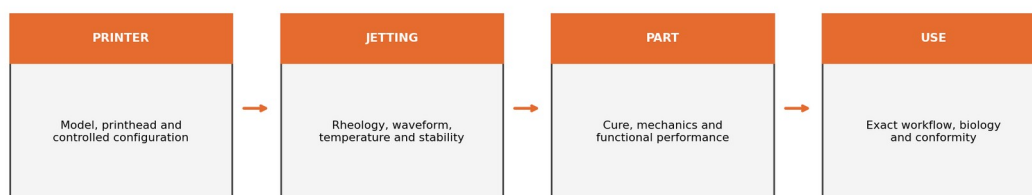
Keywords inkjet photopolymer · MultiJet · PolyJet · printhead · jetting window · dental manufacturing

Source use. Product compatibility is controlled in [1]; inkjet science in [2–3]; biological/AM scope and dental workflow control in [4–6].

1. Model-level jetting validation

A generic platform-family name is insufficient. The record identifies printer model, printhead, waveform, jetting temperature, viscosity/surface-tension window, drop formation, recirculation, material stability and cure.

- Confirm material-contact compatibility.
- Monitor nozzle reliability and satellite droplets.
- Record exact firmware/process configuration.



Release requires traceable evidence at every gate; a catalogue label cannot bypass the chain.

Figure 1. WP-28 evidence gates from controlled material description to final acceptance.

2. Printed-part evidence

After jetting validation, the part is tested for mechanical, dimensional, thermal, electrical, optical or removal performance according to intended function.

- Do not infer application suitability from successful jetting.
- Validate support/removal and post-cure.
- Test final geometry where relevant.

3. Composition and regulated-use boundary

Bio-derived and monomer-free claims require exact metric and formulation evidence. Biological evaluation and regulatory status are separate and belong to the exact finished device and process.

4. Minimum controlled evidence before release

Control field	Required record	Release interpretation
Printer	Model, printhead and controlled configuration	Catalogue description only until evidence is linked
Jetting	Rheology, waveform, temperature and stability	Control process variables and change triggers
Part	Cure, mechanics and functional performance	Report method, result, uncertainty and limits
Use	Exact workflow, biology and conformity	Apply final acceptance and responsibility boundary

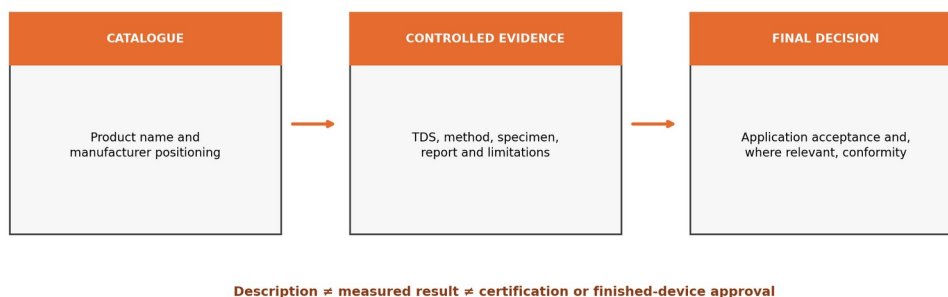


Figure 2. WP-28 separates catalogue positioning, measured evidence and final application decisions.

KEY INSIGHT

Precise product or application language is retained only when the exact formulation, method, processed specimen and controlled evidence can be traced.

5. Limitations

- Platform-family labels do not establish compatibility.
- Not every portfolio-axis combination exists.
- Composition attributes do not establish biological safety.
- Dental workflows require product-by-product mapping.
- Final-part tests remain mandatory.

6. Conclusions

- Compatibility is determined at printer-model, printhead and validated-configuration level.
- A jetting window includes viscosity, surface tension, waveform, temperature, drop formation, recirculation, stability and cure.
- Dental and medical uses require product-specific and finished-device evidence.
- This corrected candidate remains local and on HOLD until series-wide scientific, metadata and visual release checks are complete.

Revision note

Version 5.3 replaces family-level compatibility with model-level validation, separates composition from biology and removes direct material-to-dental-device conformity mappings.

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Disclosure. Dr. Juan Segurola is founder and Scientific Director of 3Dresyns by Resyner Technologies S.L., the supplier of the materials discussed.

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