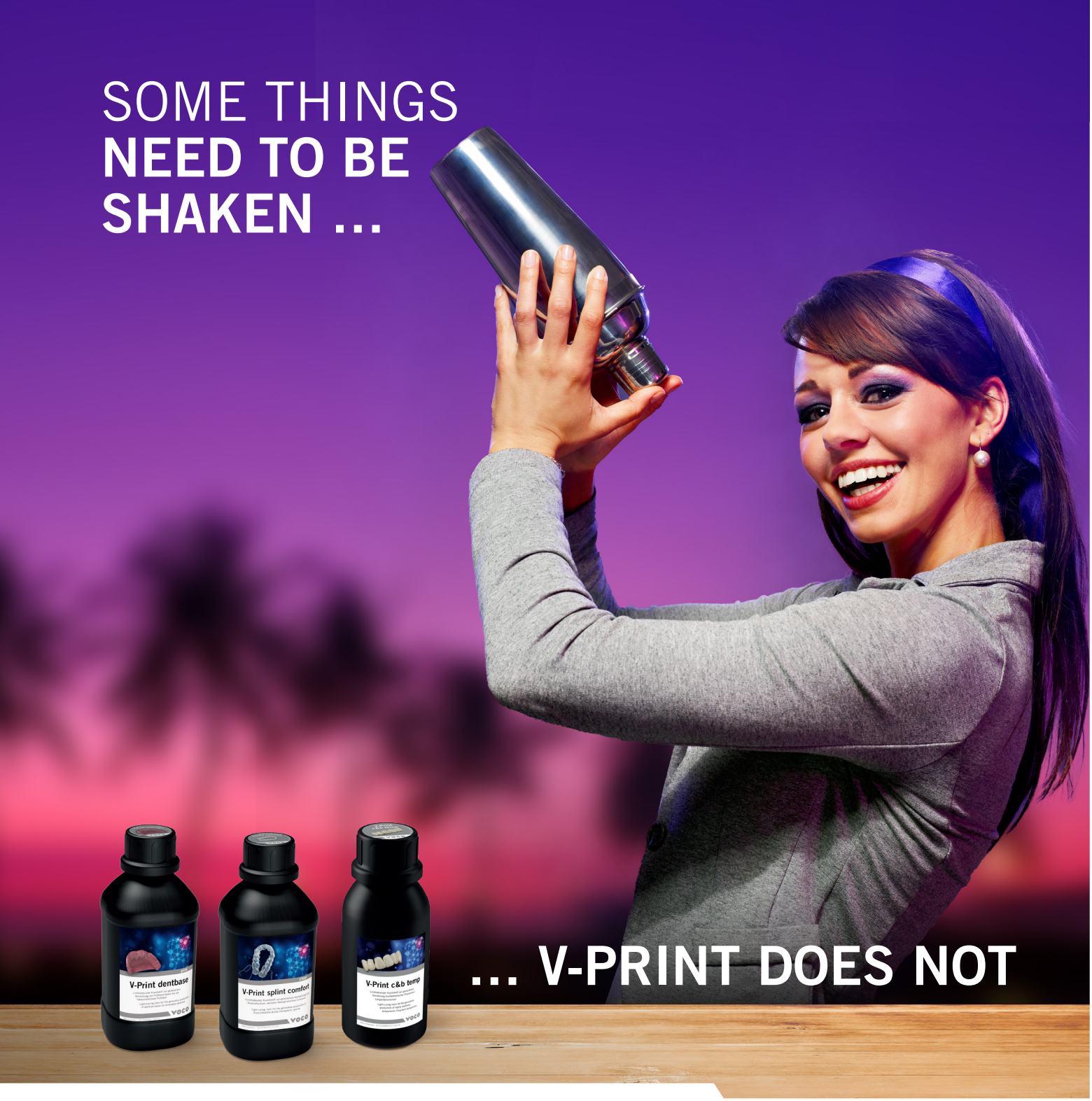


V-Print®

SEDIMENTATION-FREE 3D PRINT RESINS FROM THE DENTAL MANUFACTURER YOU CAN TRUST

VOCO
THE DENTALISTS

CONTENTS

VOCO – The Dentalists

Manufacturing dental products is our passion

For over forty years, VOCO has been known around the world as an innovative manufacturer of dental products with particular expertise in the field of light-curing resins for direct and indirect restorative dentistry. VOCO applies this knowledge and experience to the field of digital dentistry and has successfully launched a wide variety of products for additive and subtractive fabrication techniques worldwide. Alongside materials for the subtractive workflow, such as Grandio blocs and Structur CAD, VOCO offers professional users V-Print, a tried and tested range of top-quality dental materials for 3D printing.

V-Print 3D resins are not only manufactured at VOCO headquarters in Cuxhaven, Germany, but their development has been overseen by an interdisciplinary research team comprised of dental technicians, dental engineers and chemists all along the digital process chain. This guarantees optimal user-friendliness and performance in the dental practice and laboratory.

How do we do it?!

VOCO uses nothing but the best raw materials that fully comply with the strict quality standards it sets for itself. In combination with research expertise acquired over decades in the field of light-curing resins, VOCO is able to produce printing resins of the very highest quality. This is achieved by using special dental monomers that form extremely stable three-dimensional networks during the light-curing process.

Consequently, all V-Print products yield homogeneous printed objects with high stability. This homogeneity has multiple advantages. The products do not need to be shaken before printing starts, resin vats are easy to clean, and excellent physical properties of the final printed objects are achieved. Selected raw materials are employed to prevent discoloration of the splint materials, with the result that they are barely visible when worn.

This contributes considerably to successful treatment.
You can benefit from the expertise of a certified manufacturer of dental materials when fabricating your dental workpieces.

Advantages of all V-Print® materials!

Ready for use immediately and without shaking – V-Prints are sedimentation-free
All V-Print printing materials are sedimentation-free! This means that fillers and dyes do not settle over time, either in the bottle or, far more importantly, during the printing process. The V-Print bottle does not need to be shaken before use, so no air bubbles enter the material. This allows immediate filling of the vat and the ability to immediately start printing. Unsupervised printing overnight is possible. The printing process runs reliably from the first step to the last, and the final product properties are reproducible. You can decide when each print job is started and reduce your preparation time. No need to invest in homogenization equipment because V-Print printing materials do not require time-consuming preparation.

Rapid and reliable printing, including easy cleaning of the vat – optimum flowability
During the development of V-Print materials, the focus was on excellent final material properties along with good flow properties for an optimal printing process. The flowability of V-Print not only ensures an optimal printing process but also makes it easier to return the material to the bottle if necessary. The developed flow characteristics also make it easier for you to clean the vat with minimum waste.

Safe removal from the build platform – high green strength
The printed objects have yet to be post-cured when removed from the build platform, meaning they have not attained their final physical properties. The high green strength of all objects printed with V-Print is required for safe and deformation-free removal from the build platform.

Fast and cost-effective – post-curing without protective gas
Objects made from V-Print materials can be post-cured without protective gas. One of the aims when developing V-Print was to achieve a high surface quality without the use of protective gas. Fewer working steps means time savings for you. The handling is simpler and the streamlined process saves the expense of nitrogen or a more high-end light polymerization unit.

Safe for users and patients alike – thanks to biocompatible dental products
Always putting the safety and care of our practitioners and their patients at the forefront.

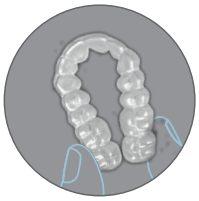
You'll love it! – odorless or low-odor
All V-Print printing materials are very low-odor even in their liquid state, which makes their processing very pleasant for the user. You've surely already produced a denture base conventionally from PMMA? Then you'll love digital fabrication with V-Print dentbase.

In their cured state, all objects made from V-Print printing material are completely odorless or very low-odor. This increases customer acceptance and thus treatment success, e.g., in the case of long-term splint therapy.

Overview – V-Print® printing materials

	Color	Indications	FDA Clearance/ Health Canada Clearance
 **V-Print splint comfort**	Clear	3D printing of: - Therapeutic splints - Patient-matched night guards/splints - Auxiliary parts and functional parts for diagnostics	Yes/ Yes
 **V-Print splint**	Clear	3D printing of: - Therapeutic splints - Patient-matched night guards/splints - Auxiliary parts and functional parts for diagnostics	Yes/ Yes
 **V-Print SG**	Clear	Dental drilling templates	Yes/ Yes
 **V-Print dentbase**	Pink	Removable denture bases	Yes/ Yes
 **V-Print DT**	A1, A2, A3, B1	Permanent denture teeth	Yes/ Yes

	Color	Indications	FDA Clearance/ Health Canada Clearance
 **V-Print Try-In**	Beige	Try-ins for full and partial dentures Transfer and grinding templates Correction and occlusal impressions	Yes/ Yes
 **V-Print c&b temp**	A1, A2, A3	US: Long-term temporaries like crowns, bridges and mock-ups CAN: Temporaries like crowns, bridges and mock-ups	Yes/ No
 **V-Print model 2.0**	Beige	3D printing of crown and bridge models and ortho models	Yes/ Yes
 **V-Print tray**	Blue	Individual impression and function trays Bases for bite templates and wax assemblies for full dentures Occlusal registrations	Yes/ Yes
 **V-Print cast**	Blue	Production of objects that can be burned out without leaving any residues for casting processes and press ceramics	Yes/ Yes



V-Print® splint comfort

Light-cured resin for 3D printing of clear thermo-flexible therapeutic splints, aligners and night-guards

Indications

3D printing of:

Therapeutic splints

Patient-matched night guards/splints

Auxiliary parts and functional parts for diagnostics

Advantages

- **High flexural strength and excellent wear resistance** allow for devices as thin as 1mm
- **Thermo-flexibility, biocompatibility, odorless and neutral flavor** increases patient acceptance
- **Extremely fracture resistant and durable**
- **Clear-transparent, easy to polish and color stable** for excellent esthetics
- **FDA 510k-clearance**

REF 6126 Bottle 1,000 g Clear

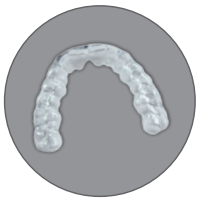
Color	Clear	
Viscosity	1,250 mPa·s	Internal test
Modulus of elasticity	670 MPa*	Equivalent to DIN EN ISO 20795-2
Water absorption	15 µg/mm³*	Equivalent to DIN EN ISO 20795-2
Water solubility	2.5 µg/mm³*	Equivalent to DIN EN ISO 20795-2

For VOCO/W2P printers, only combinable with PowerVat *See page 16

Very flexible splint from 3D printer

View of bite elevation in anterior region

View of bite elevation in posterior region



V-Print® splint

Light-cured resin for 3D printing of splints, night-guards and other diagnostic parts

Indications

3D printing of:

Therapeutic splints

Patient-matched night guards/splints

Auxiliary parts and functional parts for diagnostics

Advantages

- **FDA 510k-cleared**
- **Biocompatibility and neutral flavor** ensure high level of patient acceptance
- **Esthetically pleasing** clear-transparent results
- **Rigid with high flexural strength** for durable orthodontic objects
- **Easy to polish and stain resistant**

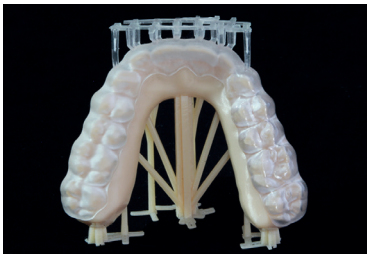
REF 6044 Bottle 1,000 g Clear

Color	Transparent	
Viscosity	1,000 mPa·s	Internal test
Flexural strength	75 MPa*	Equivalent to DIN EN ISO 20795-2
Modulus of elasticity	2,100 MPa*	Equivalent to DIN EN ISO 20795-2
Water absorption	27.7 µg/mm³*	Equivalent to DIN EN ISO 20795-2
Water solubility	< 0.1 µg/mm³*	Equivalent to DIN EN ISO 20795-2

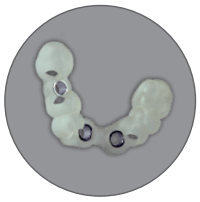
Depending on object volume, support structures, etc.

*See page 16

Splint with support structures



Splint-model combination from 3D printer



V-Print® SG

Light-cured resin for 3D printing of transparent surgical guides

Indications

Dental drilling templates

Advantages

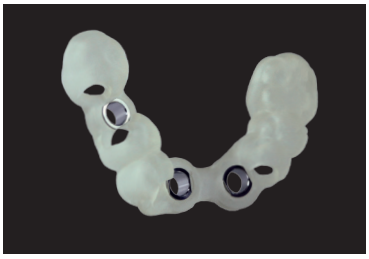
- **Autoclavable** at 250 °F/134 °C
- **Optimal flow properties**
- **High precision** for optimal fit
- **Excellent green-state stability**, so not subject to distortion
- **High flexural stability**
- **Biocompatible**
- **Neutral flavor**
- **FDA-cleared** class I medical device

REF 6043 Bottle 1,000 g Clear

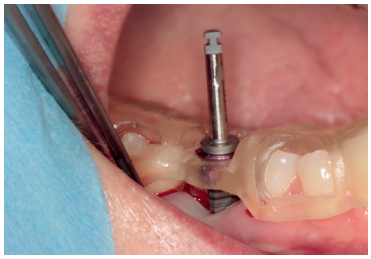
Color	Transparent	
Viscosity	1,550 mPa·s	Internal test
Flexural strength	95 MPa*	Equivalent to DIN EN ISO 20795-2
Modulus of elasticity	2,660 MPa*	Equivalent to DIN EN ISO 20795-2
Water absorption	16 µg/mm³*	Equivalent to DIN EN ISO 20795-2
Water solubility	1.9 µg/mm³*	Equivalent to DIN EN ISO 20795-2

(autoclaved 134°C, 5 mins) *see page 16

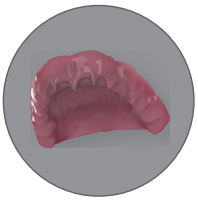
Depending on object volume, support structures, etc.



Dimensionally stable, steam-sterilized drilling template with accurate fit of drill sleeves



Guided implantation: Medical device class II – approved for wound contact



V-Print® dentbase

Light-cured resin for 3D printing of denture bases for removable dentures

Indications

Removable denture bases

Advantages

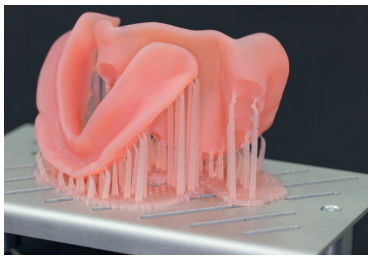
- **Chameleon effect** to match the gingiva with only one shade
- **Sedimentation free** – perfect for overnight printing
- **Biocompatible** with FDA 510k clearance
- **Compatible** with all leading reline materials
- **High green strength** for safe removal from building platform

REF 6048 Bottle 1,000 g Pink

Color	Pink	
Viscosity	1,700 mPa·s	Internal test
Flexural strength	90 MPa*	Equivalent to DIN EN ISO 20795-2
Modulus of elasticity	2,450 MPa*	Equivalent to DIN EN ISO 20795-2
Water absorption	24 µg/mm³*	Equivalent to DIN EN ISO 20795-2
Water solubility	< 0.1 µg/mm³*	Equivalent to DIN EN ISO 20795-2

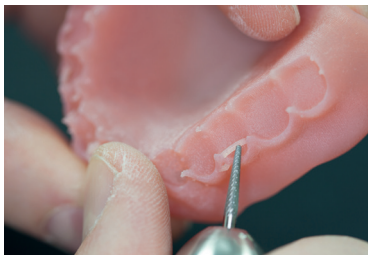
Depending on object volume, support structures, etc.

*See page 16



Additively fabricated denture bases

Rapid removal of support structures



Trimming of support attachments and problem areas

V-Print® DT

3D print resin for highly esthetic permanent denture teeth

Indications

Permanent denture teeth

Advantages

- **Highly-filled printing material – for permanent fracture-resistant results**
- **Excellent physical properties:**
  - flexural strength 60% as high as PMMA for durability
  - high wear resistance for long wearing time
  - low water absorption and solubility for mechanical stability
  - discoloration resistant – for long-lasting esthetics
- **Natural fluorescence** – for high esthetic demands
- **Easy to process and polish**
- **Composite printing material** – quick to characterize, repair or add-on with flowable composite or resin stain

REF 6904	Bottle 500 g A1
REF 6905	Bottle 500 g A2
REF 6906	Bottle 500 g A3
REF 6908	Bottle 500 g B1

Shades	A1, A2, A3, B1	
Viscosity	2,800 mPa·s	Internal test (10 s^{-1} at 23 °C)
Flexural strength	132 MPa*	Equivalent to DIN EN ISO 10477
Modulus of elasticity	4,400 MPa*	Equivalent to DIN EN ISO 178
Water absorption	13.6 µg/mm^3*	Equivalent to DIN EN ISO 10477
Water solubility	1.8 µg/mm^3*	Equivalent to DIN EN ISO 10477
Vickers hardness (HV1)	24.1	Internal test

Approx.
42 × upper jaw
or 50 × lower jar
= or 23 × upper + lower jaw

Depending on object volume, support structures, etc.

Easy removal of the support structures

Printed denture teeth

Individualized printed prosthesis

V-Print® Try-In

Light-cured resin for the 3D printing of try-ins for prosthetics

Indications

Try-ins for full and partial dentures

Transfer and grinding templates

Correction and occlusal impressions

Advantages

- **Verification and possibility to assess** the fit, occlusion, functionality, phonation and esthetics before the production of prosthetics
- **Biocompatible**
- **FDA-cleared** class I medical device

REF 6049 Bottle 1,000 g Beige

Color	Beige	
Viscosity	850 mPa·s	Internal test
Flexural strength	85 MPa*	Equivalent to DIN EN ISO 20795-1
Modulus of elasticity	2,500 MPa*	Equivalent to DIN EN ISO 20795-1
Water absorption	17.5 µg/mm³*	Equivalent to DIN EN ISO 20795-1
Water solubility	< 0.1 µg/mm³*	Equivalent to DIN EN ISO 20795-1

Depending on object volume, support structures, etc.

*See page 16

Printed monolithic try-in

Try-ins made from V-Print Try-In after polishing – ready for insertion!

Corrective impression-taking with V-Posil Mono Fast is possible

V-Print® c&b temp

Light-cured resin for 3D printing of highly esthetic long-term temporaries

COMING SOON

Indications

US: Long-term temporaries like crowns, bridges and mock-ups

CAN: Temporaries like crowns, bridges and mock-ups

Advantages

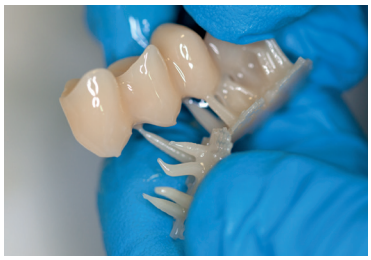
- **Highly-filled printing material** – for strong temporaries
- **Excellent physical properties**
  - high flexural strength and modulus of elasticity for stable temporaries
  - high wear resistance for extended life-span
  - low water absorption and solubility for color stability and mechanical strength
- **Natural fluorescence** – for high esthetic demands
- **Easy to process and polish**
- **Composite printing material** – quick to characterize or adapt

REF 6897	Bottle 500 g A1
REF 6898	Bottle 500 g A2
REF 6899	Bottle 500 g A3

Color	A1, A2, A3	
Viscosity	2,800 mPa·s	Internal test (10 s-1 at 23 °C)
Flexural strength	132 MPa*	Equivalent to DIN EN ISO 10477
Modulus of elasticity	4,417 MPa*	Equivalent to DIN EN ISO 10477
Water absorption	17.63 µg/mm³*	Equivalent to DIN EN ISO 10477
Water solubility	0.68 µg/mm³*	Equivalent to DIN EN ISO 10477
Vickers hardness (HV1)	24.1	Internal test

Depending on object volume, support structures, etc.

*/**See page 16



Easy removal of the support structures

Easy to polish

Final prosthetic restoration on printed model

V-Print® model 2.0

Light-cured resin for 3D printing of dental models

Ideal for:

3D printing of crown and bridge models and ortho models

Advantages

- **Speed and accuracy in one material** – optimal fit even with100µm layer thickness
- **Easily trimmable without undesirable changes** (e.g. caused by heat caused by instruments)
- **Scratch-resistant hard surface** for trial fitting without deforming
- **Heat resistant** – suitable for vacuum thermo-forming of retainers and aligners
- **No sedimentation** – perfect for overnight printing

REF 6128 Bottle 1,000 g Beige

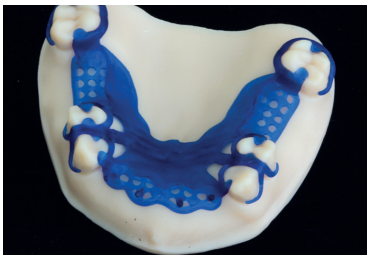
Color	Beige	
Viscosity	1,270 mPa·s	Internal test
Flexural strength	96 MPa*	Equivalent to DIN EN ISO 178**
Modulus of elasticity	2,600 MPa*	Equivalent to DIN EN ISO 178**
Surface hardness	19 HV1*	Internal test

*/**See page 16

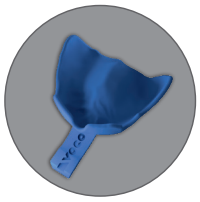
Depending on object volume, support structures, etc.

Simple separating cuts without clogging

Scratch-proof for safe trial fitting



Printed model casting for fit check on the dental model



V-Print® tray

Light-curing resin for the 3D printing of individual trays, base plates and occlusal registrations using CAD / CAM technology

Indications

Individual impression and function trays

Bases for bite templates and wax assemblies for full dentures

Occlusal registrations

Advantages

- **Timesaving** – printable in high layer thicknesses (up to 200 µm)
- **Distortion-free impressions** – thanks to the great strength
- **Universal** - suitable for all types of impression material
- **Rapid and efficient** – object printing including the forming of functional peripheries, retention elements and gaps for implant impressions.
- **Biocompatible**
- **FDA-cleared** class I medical device

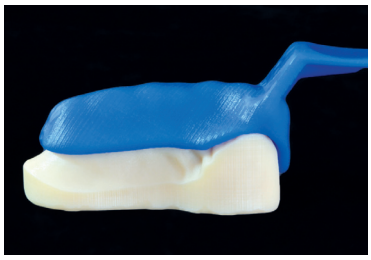
REF 6047 Bottle 1,000 g Blue

Color	Blue	
Viscosity	1,500 mPa·s	Internal test
Flexural strength	100 MPa*	Equivalent to DIN EN ISO 178**
Modulus of elasticity	2,720 MPa*	Equivalent to DIN EN ISO 178**
Water absorption	30 µg/mm³*	Equivalent to DIN EN ISO 20795-2
Water solubility	3 µg/mm³*	Equivalent to DIN EN ISO 20795-2

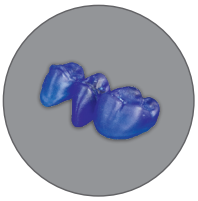
Depending on object volume, support structures, etc.

*/**See page 16

Partial tray printed in thick layers



3D-printed partial tray on printed model



V-Print® cast

Light-cured resin for the 3D printing of burn-out objects for casting and pressing processes

Indications

Production of objects that can be burned out without leaving any residues for casting processes and press ceramics

Advantages

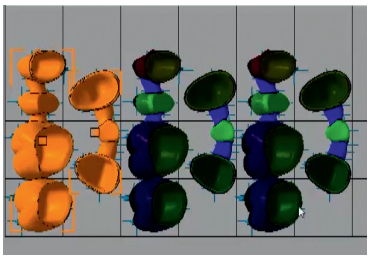
- **Reliable printing process** – non-sedimenting over the entire printing duration
- **Reproducible** – simple duplication prior to casting
- **Quick finishing process** – precisely printed objects allow for high quality of reproduction
- **High form and edge stability** – reliable checking of occlusion and lateral movements
- **Finishing at an early stage** – instrument-friendly finishing of objects in light-cured state
- **High compatibility** – can be used with commercially available phosphate bonded investment materials
- **Restorations free of impurities** – V-Print cast burns without residue
- **FDA-cleared** class I medical device

REF 6045 Bottle 1,000 g Blue

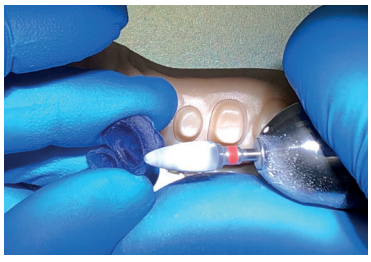
Color	Blue	
Viscosity	1,550 mPa·s	Internal test
3-point flexural strength	78 MPa*	Equivalent to DIN EN ISO 178**
Modulus of elasticity	2,470 MPa*	Equivalent to DIN EN ISO 178**

*/** See page 16

Depending on object volume, support structures, etc.



Digitally simple duplication of objects



Easily trimable without formation of smear film

Printer and material compatibilities for optimum flexibility

Perfect solutions for the digital world of modern dentistry – that's the goal of the Dentalists at VOCO, achieved in cooperation with numerous renowned 3D printer manufacturers. A comprehensive and growing list of printer and material compatibilities can be found at **www.voco.dental/3dprintingpartners**.

ASIGA	**Max UV, PRO 4K**
ACKURETTA	**SOL**
MICROLAY 3D PRINTERS	**Versus / EVE Pro**
MIICRAFT	**Prime150Y / Ultra 125Y / 150 Y / Hyper 125Y / Profession 250Y**
rapidshape	**D20 II / D30 II / D40 II / D10+ / D20+ / D30+**
straumann	**P20 / P30 / P40 / P10+ / P20+ / P30+**
dental wings	**D20 II / D30 II / D40 II / D10+ / D20+ / D30+**
SHINING 3D	**AccuFab-L4D**
W2P	**SolFlex 163 HD / 170 / 350 / 650 / Plus**

VOCO TRUSTED PARTNER

www.voco.dental/ 3dprintingpartners

General information: The measured values do not represent target values within the scope of the product's continuous quality control.
*Manufacturing note: SolFlex 3D printer / OtoFlash G171. Other approved printers/post-curing units may differ slightly.
**Test specimen dimensions 80.0 × 4.0 × 10.0 mm

VOCO America Inc.
1285 Rosemont Drive
Indian Land · SC 29707

www.vocoamerica.com
infousa@voco.com

Toll-free phone: 1-888-658-2584
Fax: 1-888-849-3989

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