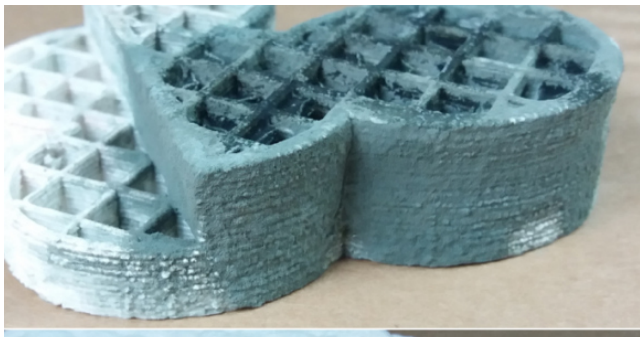
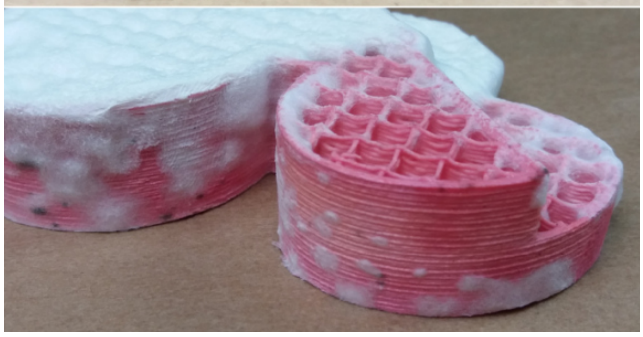
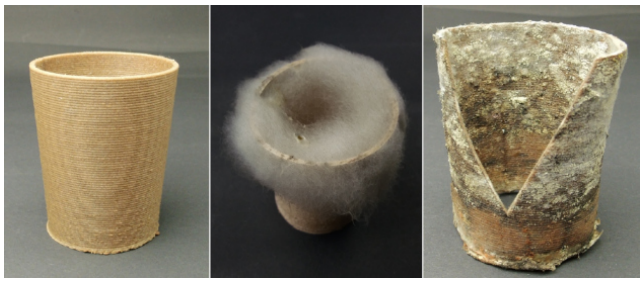
10 years weird 3d printing filaments – LayFilaments by Kai Parthy v.8.23

GROWLAY is porous and works like a breeding ground for biological cultures / add seeds or spores to them and they will grow / pics: grass / blue and white cheese / mildew / lichen /

GROWLAY properties: is microcapillary, its cavities suck, absorb and store water or other liquids, mold can grow through the open-cell capillaries and forms a mycelium, compostable

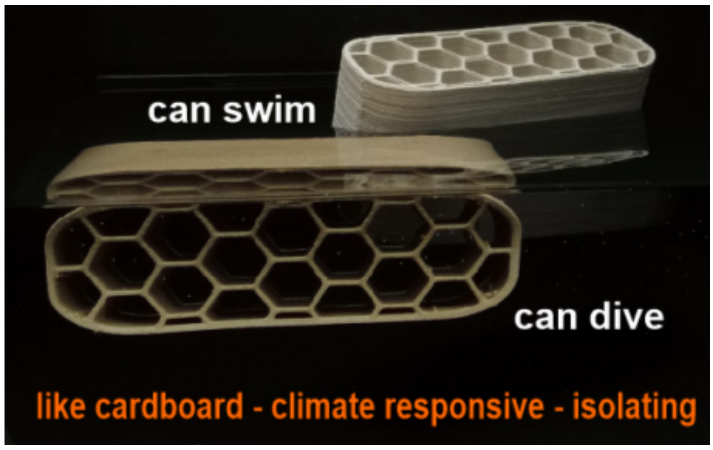


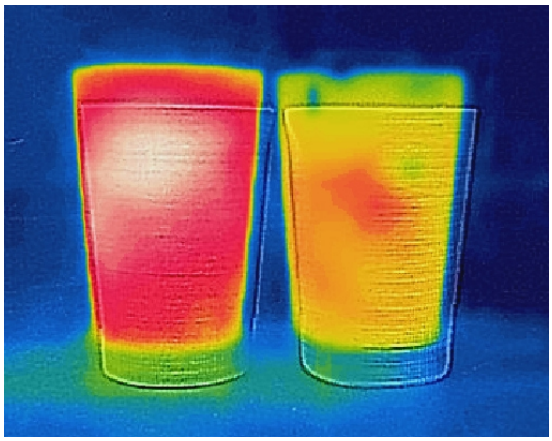




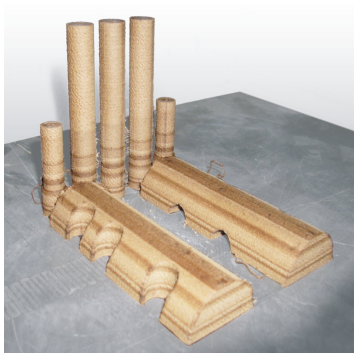
LAYWOOD meta5

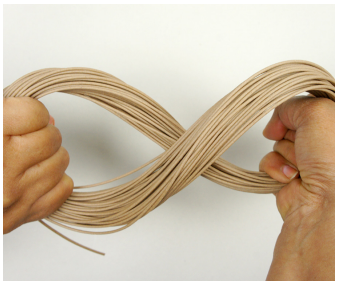
a) floats on water, light as Balsa after rinsing in water, can swim, can dive, sucks water fast
b) porous, density: ~0.5 gr/ccm; rough, feels as cardboard
c) climate responsive (elongation) absorptive carrier for agents
d) thermal isolating, low thermal conductivity





LAYWOOD The Original with wood particles / tree-ring effect / worlds first wood filament / lowest warp /

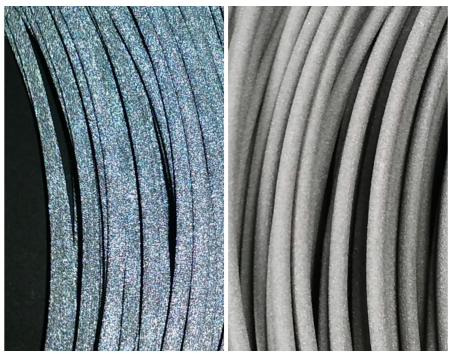




LAYWOOD flex

REFLECTOLAY

for retro-reflective objects / fashion accessoires / savety gadgets for bikers parts for experimental cars to sew on patches / they will „glow" when lighted up by other light beams at road or highways / the filament is flexible and filled with millions of reflective pigments / this pigments occour as little dots out of the ourface of filament and ofcourse after printing / they send incoming light back to it´s source



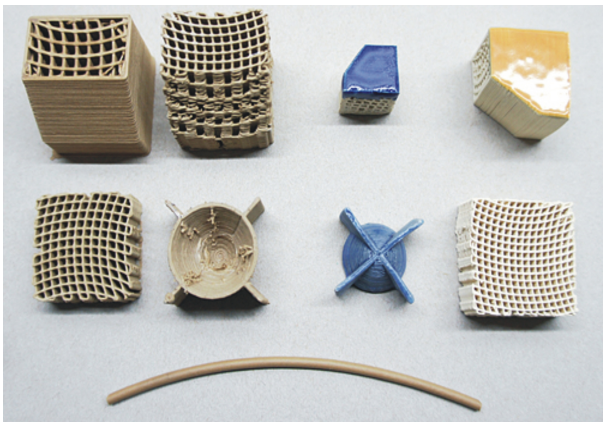
LAYBRICK

best dimension stability / lowest warp / first sand stone like, chalk filament / for rough architecture models

ideal for jumbo-printers, the objects are ink-able, grind-able, contains natural mineralic fillers (super-fine milled chalk),
print temp: 165°C to 190°C to get smooth, higher temperatures (210°C) will print rougher surfaces


LAYCERAMIC

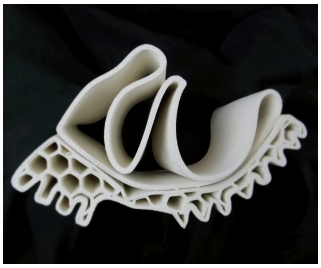
print an object / fire it / enamel the ceramic filament at over 1000°C

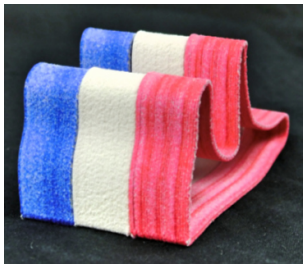


SOLAY

dedicated for rubber-things, as shoes-soles, allows vintage optic

elastic as caoutschouc / Shore A90 / high filled with nature born organic pigments (over 30%) / paintable with permanent markers / make your vintage style / blue jeans effect / for experimental shoe-wear /





new 2023 ! MOLDLAY250° (new 2023 > reduced temperature)

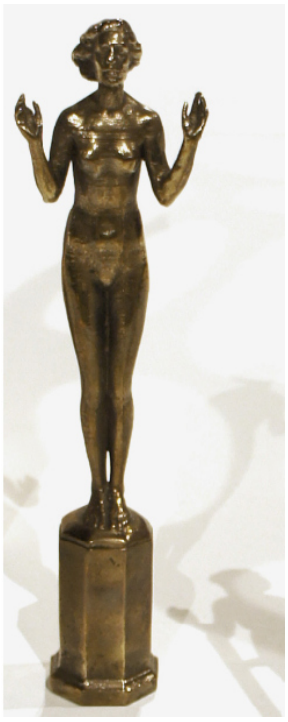
wax-alike / for lost wax casting / for permanent mold casting / super dimension stabil /near zero warp /
at 230-250°C it becomes liquid and flows as hot paraffin out of the mold /// **>>>** Instructions at the end of this document

MOLDLAY - the advantages compared to other "wax-off- ..xy-cast filaments":

1. Moldlay is the only filament that doesn't need to be burned out at high temperatures. An old oven will do.
2. Moldlay flows liquid at 250°C like paraffin from the enveloping mineral mold and can be recycled after cooling down or thrown away in the solid state.
3. Other so called "wax-off- ..xy-cast - Filament" have to be burned out in a real kiln at 500-600°C, which produces dislikeable gases.
4. MOLDLAY is a true wax-off filament, the others are not.

MOLDLAY Filament **for lost wax casting** **permanent mold casting**

printed model with feeder and ventilation channels



LAY-LOSS series

DI-ELECTRO-LAY I

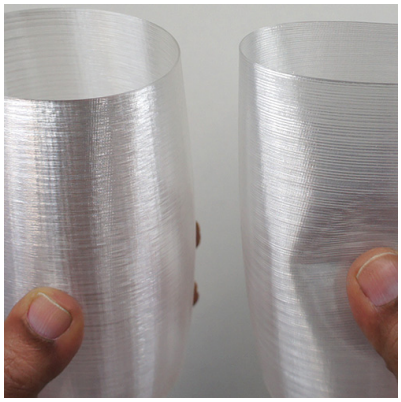
filled with TiO2
72%

DI-ELECTRO-LAY II

magnetic to
magnets,

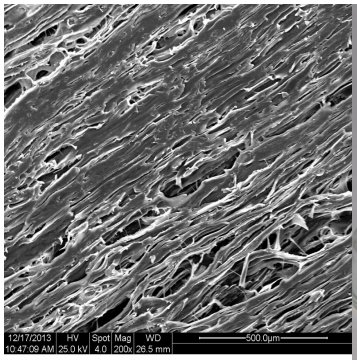
filled with
carbonyl-iron

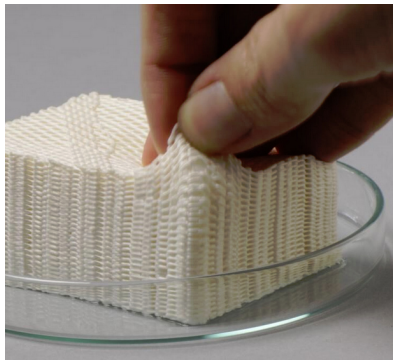
BENDLAY series (tough & flex) cristal clear / tough / flexible / bendable

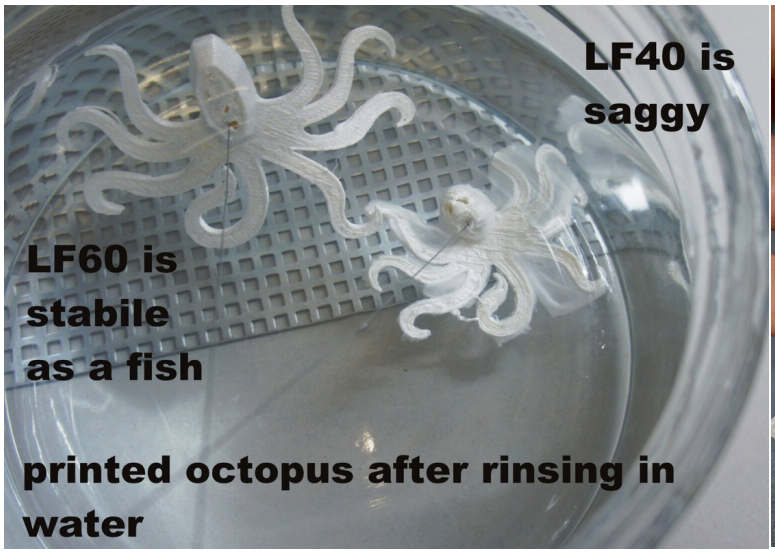


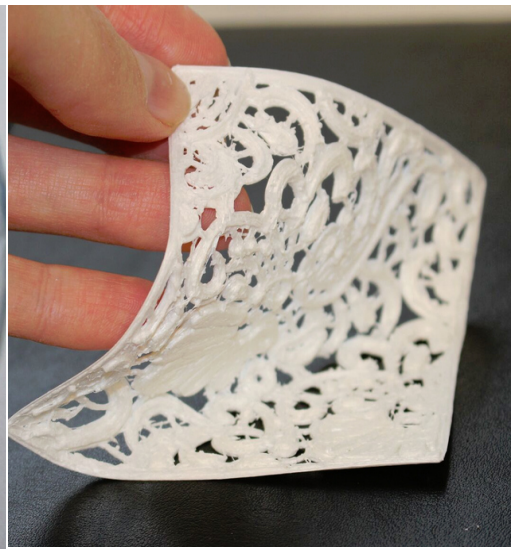
POROLAY series / LAYFOMM 40/60 / GELLAY / LAYFELT

patent pending / experimental filament / to print micro porous, felty structures / print foam a likes, floatables, leather-likes, extendables









LAY-AWAY support series (3 diff. filaments)

ETHY-LAY dissolve with alcohol

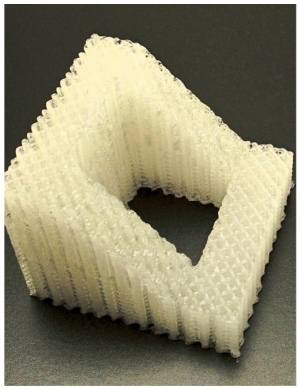
- total clear, cold plattform
- for sensitive bio prints
- print-temp. 165C
- store dry if wet – dry in oven at max. 50°C
- **("Boris Hair"old internal name)**

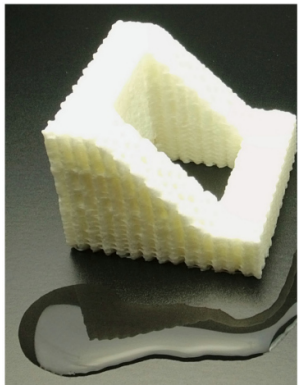
CHAMBERLAY100° dissolve with H_2O

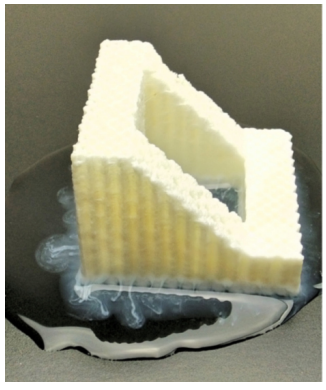
- water-soluble filament to print support-structures
- print-temp: 250 – 270°C
- improved adhesion to ABS, PC build room temp-stability 100°C

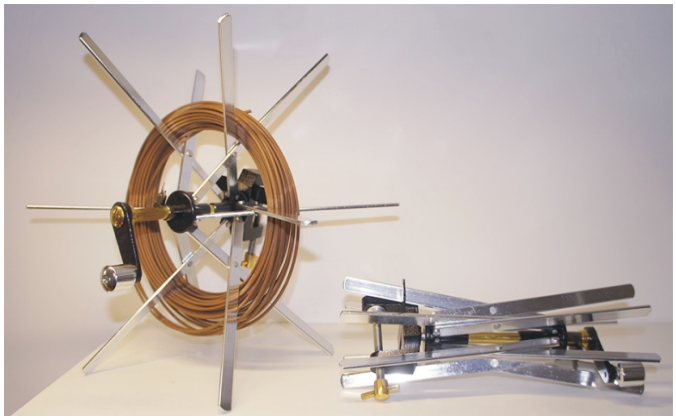
CHAMBERLAY130° dissolve with H_2O

- improved adhesion to PA, print: 250 – 270°C
- build room temp-stability 130°C

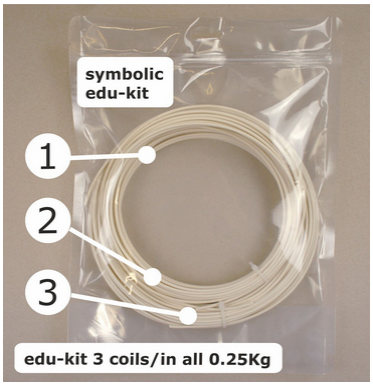








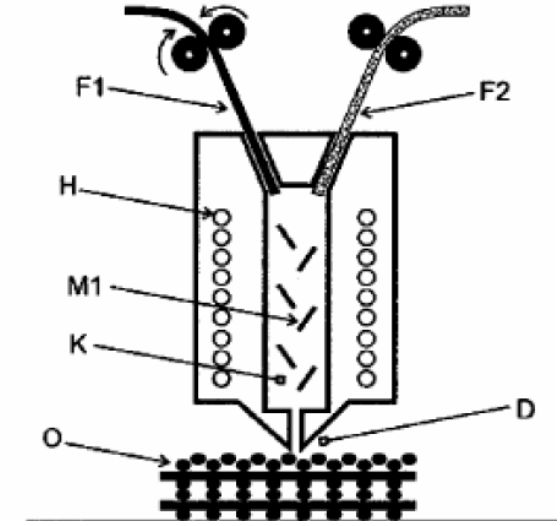
coil holder



edukit

selected 3D-printing inventions by Kai Parthy

first dual colour - dual filament hot end



german patent application from 2010
first concept for a hot end to blend filaments

Multi-Filament Printhead

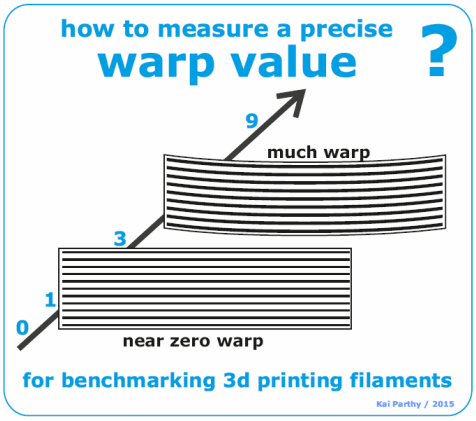
filled: **16.12. 2010**
published: 21.06.2012
DE102010054824A1

M1: static or dynamic mixing elements

[EN] Print head for rapid prototyping printer for extruding thermoplastic or reactive ...

[DE] Druckkopf für FDM-Verfahren mit mehrfacher Drahtzufuhr und Mischkammer zum Erzeugen von Objekten aus Polymerblends

WARP – INDEX for filaments



Warp-Index for filaments found.

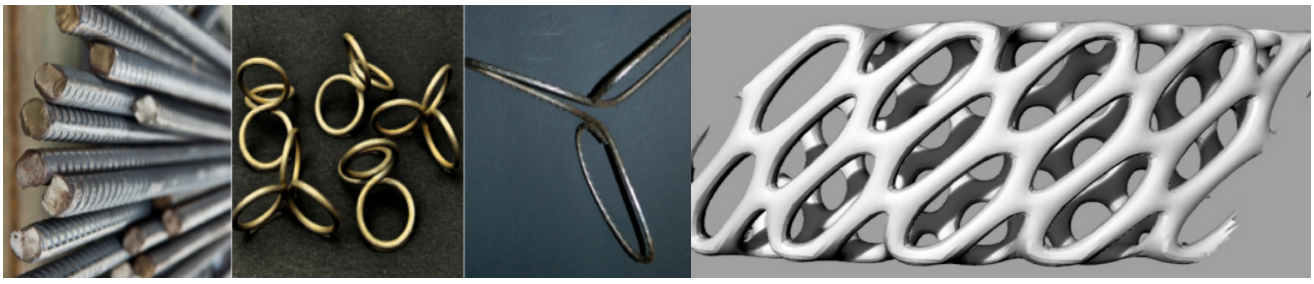
The biggest obstacle for exact printing needs a measurement standard.

The control of the warp is the everlasting problem of the 3D print scene - but at least we now can measure and classify the warp.

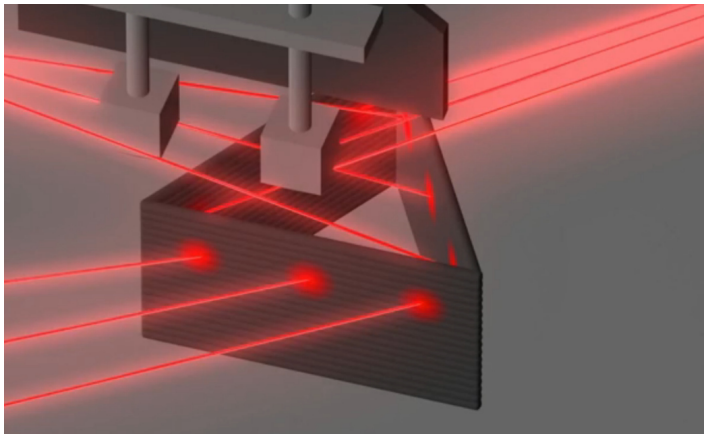
BIONIC MESH STEEL FIBRE

a new 3d-fibre for controlled and homogene dispensation into concrete
ideal to reinforce 3d-printed houses

https://3druck.com/3d-druckmaterialien/bionic-mesh-steel-fibre-von-kai-parthy-macht-3d-druck-von-freiformstrukturen-aus-beton-moeglich-1451080/



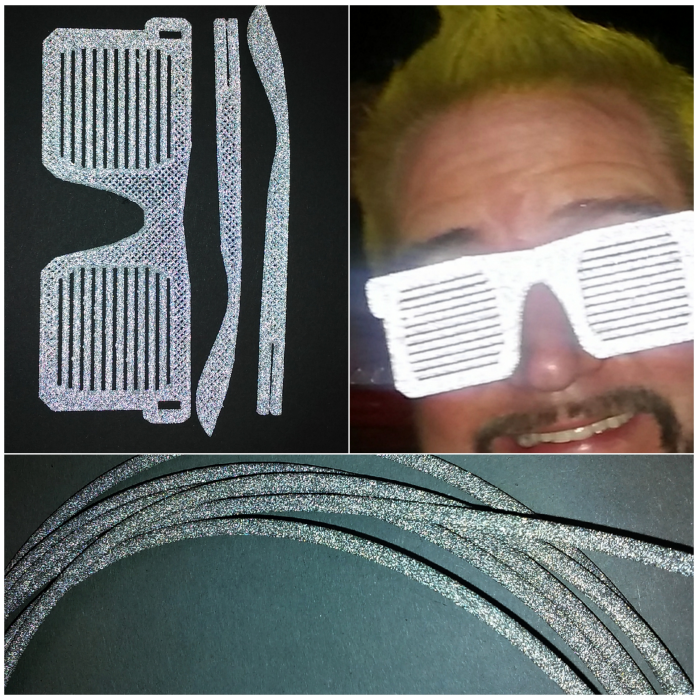
WARP-fighting CONCEPT / patent pending / animation: https://youtu.be/xgWQPULuI-U



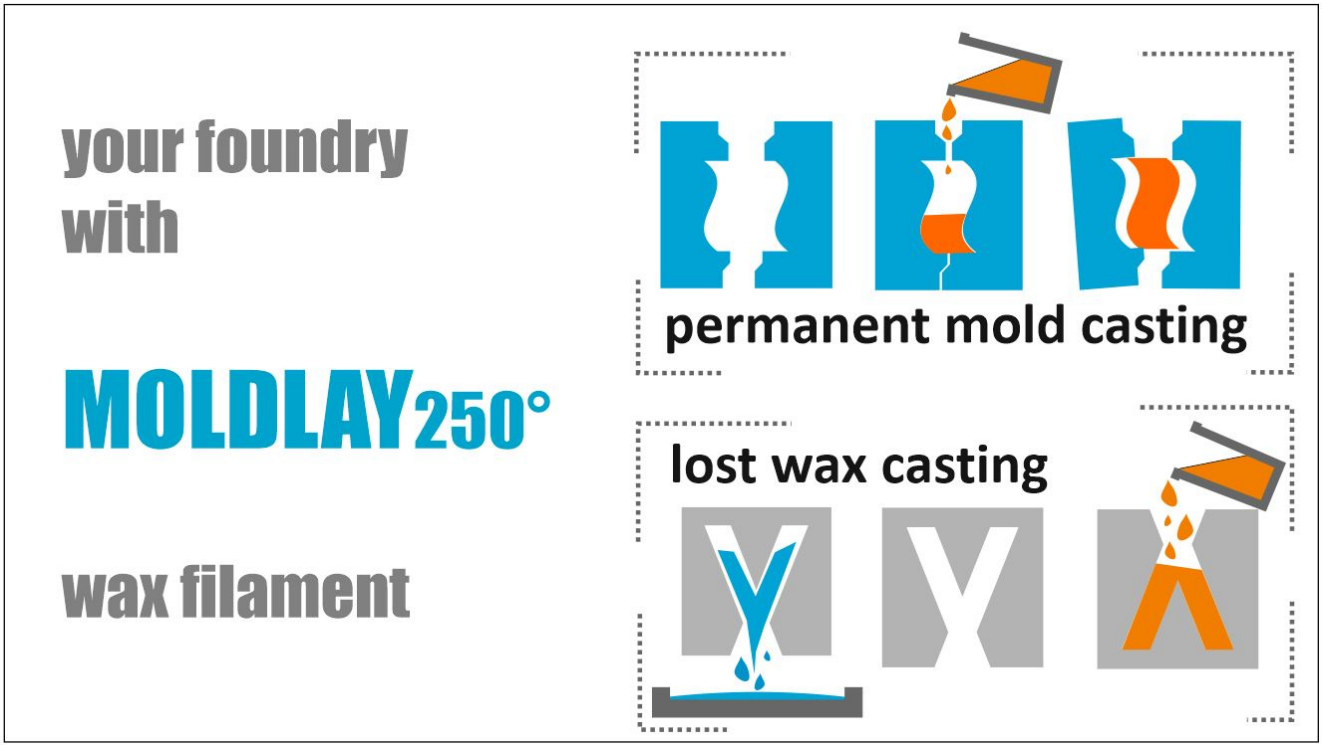
Kai Parthy / CC-Products / Germany
Productdevelopment & Innovations
kp@cc-products.de

lay-filaments.com

REFLECTOLAY additional pics



MOLDLAY Instructions



MOLDLAY250°

is a wax-alike thermoplastic 3D printing filament, dedicated for two main casting methods:
A) permanent mold casting
B) lost wax casting (investment casting)

- super dimension stabil
- near zero warp printable without heated bed
- stiff, rigid at room temperature
- print at 175 – 190° C
- heated bed max. 20°C
- treat your mold at ~ 250°C / in an old baking oven only, or kiln
- the wax flows restless out the mold, similar as hot paraffin

MOLDLAY - the advantages compared to other "wax-off- ..xy-cast filaments"

Moldlay is the only filament that doesn't need to be burned out at high temperatures.
An old kitchen oven will do.

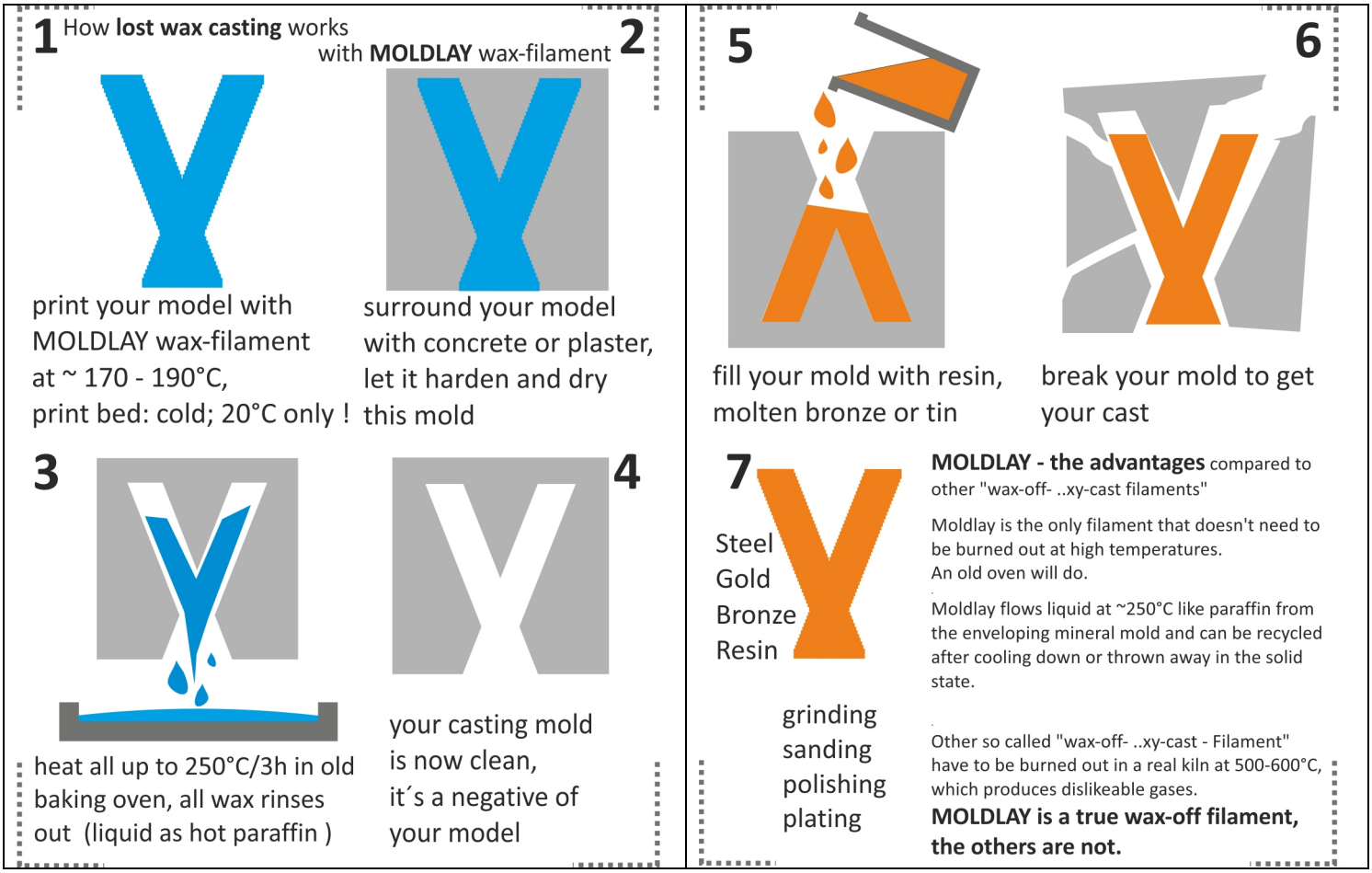
Other so called "wax-off- ..xy-cast - Filament" have to be burned out in a real kiln at 500-600°C, which produces dislikeable gases.
MOLDLAY is a true wax-off filament, the others are not.

How lost wax-casting works with MOLDLAY in 7 steps

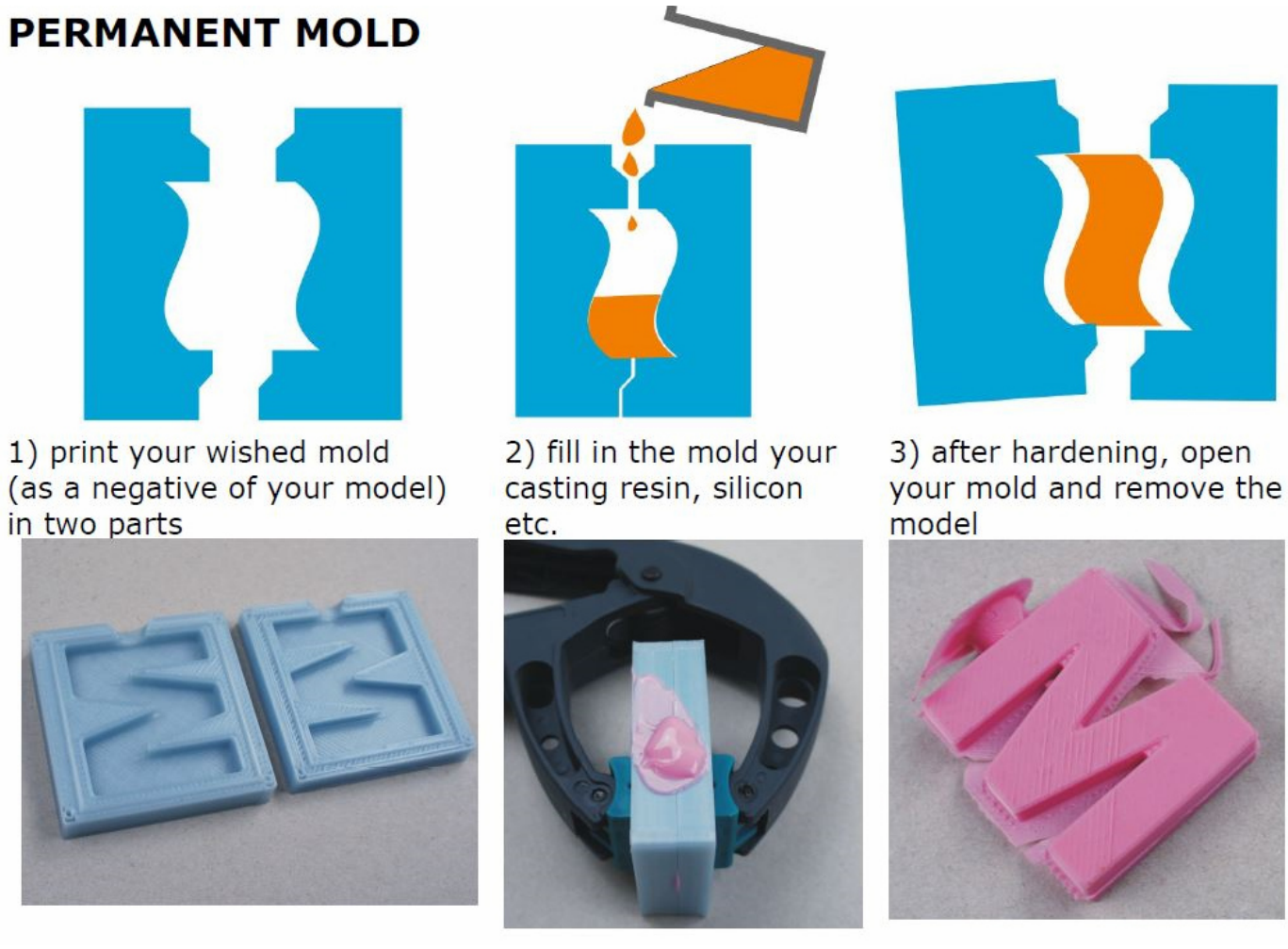
https://youtu.be/yNbncpHORUo

1) print your model with MOLDLAY wax-filament at 170 - 190°C, print bed: 20°C! build room: 20°! Moldlay sticks at the *roughened* plattform as each other Filament, as PLA, ABS or PET
2) surround your model with concrete or plaster, let it harden and dry this mold
3) heat all up to 250°C/3h in old baking oven, all wax rinses out (liquid as hot paraffin)
4) your casting mold is now clean, it´s a negative of your model
5) fill your mold with resin, molten bronze or tin
6) break your mold to get your cast
7) final steps: grinding, sanding, polishing, plating

B) lost wax casting (investment casting)



A) permanent mold casting



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