Patent alert April 2026

3D Printing

This month's selection in brief

This month's patent alert highlights recent innovations in 3D technologies, with a focus on breakthroughs in printing processes, material composition, and functional performance that are shaping the future of manufacturing, advanced formulations, and sustainability.
Centexbel offers a 3D printing platform where you can test and validate your innovative materials.

More information: https://www.centexbel.be/en/problem-solving/technology-platforms/melt-processing-platform/plastics-processing/3d-printing:

Selected patents

1.Powder for additive manufacturing, production processes thereof, and articles or devices made thereof

Patent number: WO2026/068508

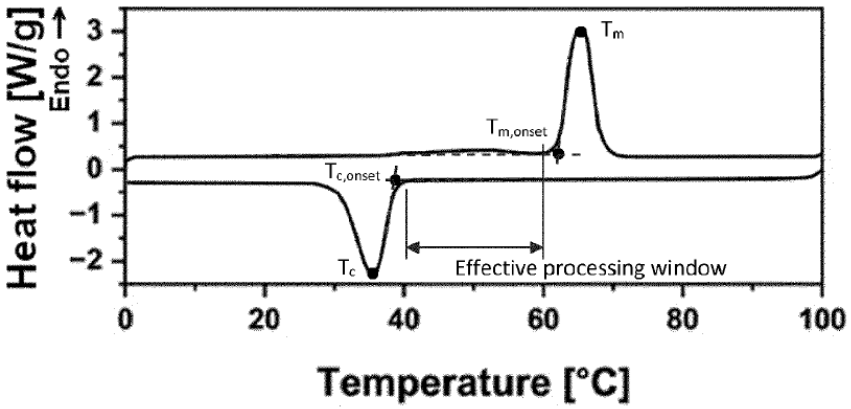
Publication date: 2026-04-02

Applicant(s): MATERIALISE

Inventor(s): DEGRYSE OLIVIER [BE]; ROELS TOON [BE]

Summary

The present invention relates to the field of additive manufacturing, preferably for producing articles and devices such as medical devices. More specifically, the present invention relates to a powder comprising spherical polyester particles, production processes thereof, and the use of said powder in additive manufacturing.



2.A biobased radical curable composition for forming solid objects

Patent number: EP4705364A1

Publication date: 2026-03-11

Applicant(s): ALLNEX BELGIUM SA [BE]

Inventor(s): ROOSE PATRICE [BE]

Summary

A Biobased Radical Curable Composition for Forming Solid Objects A composition for forming a solid object comprising: •from 10 wt% to 70 wt% of one or more compounds A, each compound A comprising a poly(trimethylene ether) moiety and one or two (meth)acrylate groups; wherein the poly(trimethylene ether) moiety is incorporated into compound A by reaction of a poly(trimethylene ether) glycol having a number average molecular weight Mn of from 500 to 5000 Dalton, and a polydispersity Đ of at least 1.5, • from 30 wt% to 90 wt% of one or more (meth)acrylate compounds B different from compound A, wherein each compound B comprises a single (meth)acrylate moiety and wherein the one or more (meth)acrylate compounds B, if polymerized together, have a Tg of more than 30°C; and • from 0 wt% to 25 wt% of other compounds C, different from compounds A and B, wherein the viscosity of the composition is less than 5 Pa.s.

Table 5: Physical properties of 3D parts formed from several poly(alkylene ether) glycol acrylates. The reported viscosity is that of the composition before curing to form the 3D parts.

Composition	Compa 1	Compa 2	Compa 3	Ex 6	Ex 7	Ex 8	Ex 9	Ex 10
PPDA500				30				
PPDA1000					30			
PPDA2000						30		
PPDA2700							30	20
PPG-UA1000/1	30							
PPG-UA2000/2			30					
PE-UA2000/1		30						
IBoA	70	70	70	70	70	70	70	80
Sum of the above	100	100	100	100	100	100	100	100
Photoinitiator (TPO-L)	2	2	1	2	2	2	2	2
$\eta_{25°C}$ (mPa s)	89	211	144	25	32	65	83	41
T_g (°C)	48	67	75	52	53	59	60	78
E_Y (MPa)	95	216	318	281	69	96	82	498
UTE (%)	135	50	290	83	120	222	240	131
Impact strength (kJ m^{-2})	2	1.9	3	15	>40	>40	>40	1

3.Radiation-curable liquid composition comprising phosphorus flame retardant and 3d-printed object formed from the same

Patent number: WO2025011987A1

Publication date: 2025-01-16

Applicant(s): BASF SE [DE]

Inventor(s): DING RUI [CN]; DR CAI ZHI ZHONG [CN]; WANG YUE [CN]; ZHANG FAN [CN]

Summary

This disclosure relates to radiation-curable liquid composition comprising a phosphorus flame retardant and a melamine-based oligomer containing at least one ethylenically unsaturated functional group, wherein said phosphorus flame retardant itself is solid at a temperature from 20 °C to 40 °C, to a process of forming 3D-printed object by using the same, to a 3D-printed object formed from the same, and to use of the radiation-curable composition in 3D-printing.

Formula		UL94									
	UL94 Classi-fication	t1 [s]	cotton indicator ignited	Burning up to holding clamp	Spec. dripped	t2 [s]	Cotton indicator ignited	Burning up to holding clamp	Spec. dripped	t2+t3 [s]	Total after-flametime t1+t2 [s]
70%FR-1+30%AP1030 #2	failed										
70%FR-3+30%AP1030 #6	V-0	<10	no	no	no	<10	no	no	no	<30	44
70%FR-2+30%AP1030 #5	V-1	<10	no	no	no	>10	no	no	no	<30	44
70%FR-4+30%AP1030 #8	V-0	<10	no	no	no	<10	no	no	no	<30	17
70%FR-3+30%AP1030 (1.6mm) #6	V-1	<10	no	no	no	>10	no	no	no	<30	56
70%FR-4+30%AP1030 (1.6mm) #8	V-0	<10	no	no	no	<10	no	no	no	<30	15
80%FR-4+20%AP1030 #9	V-0	<10	no	no	no	<10	no	no	no	<30	12
70%FR-3+30%OP945 #10	V-0	<10	no	no	no	<10	no	no	no	<30	24
70%FR-4+30%OP945 #11	V-0	<10	no	no	no	<10	no	no	no	<30	18
80%FR-4+20%OP945 #12	V-0	<10	no	no	no	<10	no	no	no	<30	20

Definition according to UL-94

t1: Afterflame time after 1st flame application

t2: Afterflame time after 2nd flame application

t3: Afterglow time after 2nd flame application

4.Curable formulations usable in forming transparent materials or objects featuring high mechanical strength

Patent number: WO2026009143A1

Publication date: 2026-01-08

Applicant(s): STRATASYS INC [US]

Inventor(s): DRIESSEN MARCUS MATHEUS [NL]

Summary

Curable formulations that provide, when hardened, transparent materials, and uses thereof, are provided. The curable formulations include two or more urethane (meth)acrylate materials which differ from one another at least by the number average molecular weight lower than 2000 grams/mol and/or the Tg, and optionally by the number of blocks and/or the NCO/OH ratio in the urethane (meth)acrylate material, and optionally a material or substance that is capable of interfering with the formation of micron-sized clusters in a hardened material formed of the formulations.

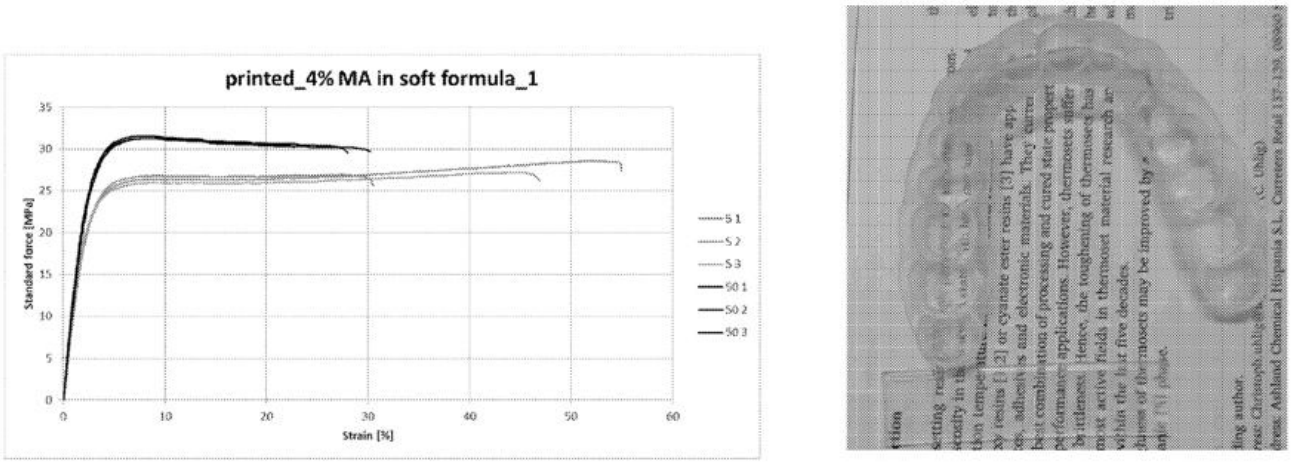


FIG. 1A

5.Methods and compositions for additive manufacturing having high water permeability

Patent number: EP4632020A1

Publication date: 2025-10-15

Applicant(s): 3D SYSTEMS INCORPORATED [US]

Inventor(s): XU PINGYONG [US]; MAI ANNA KRISTEN [US]; KEILSOHN MONICA [US]

Summary

Build materials and methods of 3D printing are described herein. In one aspect, a build material comprises an acrylate component, a photoinitiator component, and a porogen component, wherein the porogen component is water soluble. In some embodiments, the porogen component is present in the build material in an amount of 55-75 wt. %, based on the total weight of the build material.

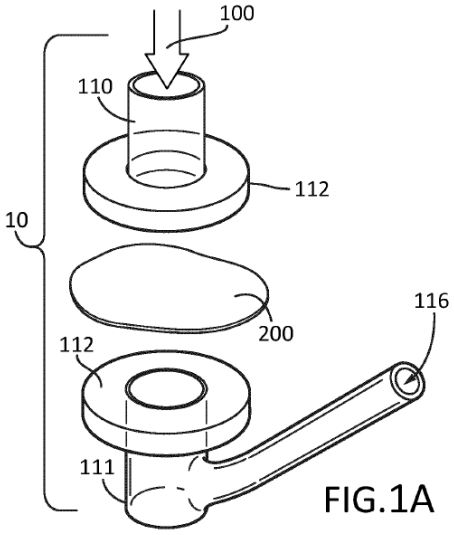


FIG.1A

6.Polymer powders with core-shell structure for use in additive manufacturing processes

Patent number: WO2026061616A1

Publication date: 2026-03-26

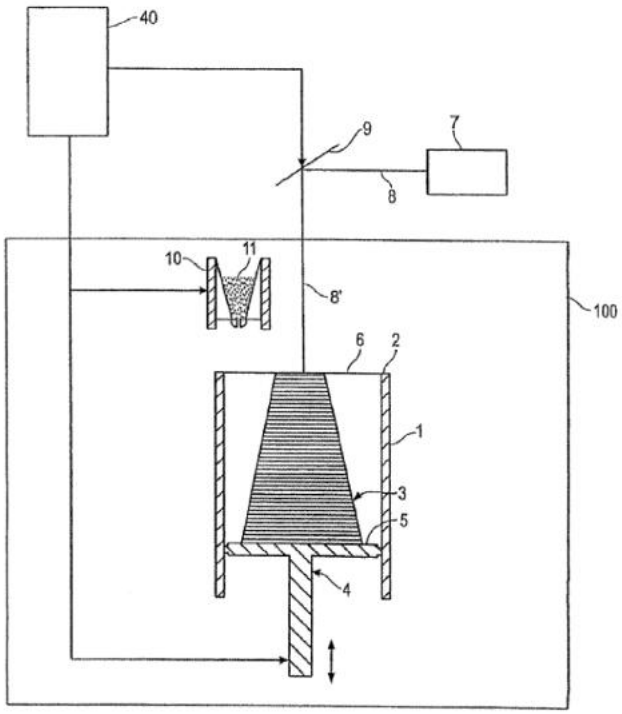
Applicant(s): EOS GMBH ELECTRO OPTICAL SYSTEMS [DE]

Inventor(s): FREIHART KARL [DE]; FRANGOV STOYAN [DE]

Summary

The invention relates to polymer powders for use as building materials for the production of three-dimensional objects, which polymer powders have a core-shell structure, wherein the compositions of the core and of the shell are adapted to achieve uniform meltability of the powder particles in an additive manufacturing process. In this way, for example, improved layer bonding is achieved in the context of the production of three-dimensional objects. The present invention further relates to methods for producing such polymer powders, to methods for producing three-dimensional objects from such powders, and to corresponding three-dimensional objects, and to the use of corresponding polymer particles for improving the melting and processing properties when processing the polymer particles to form a three-dimensional object.

Figur 1



Figur 2

Figur 3

7.Production of low-density products using moisture curable resins

Patent number: WO2026064272A1

Publication date: 2026-03-26

Applicant(s): CARBON INC [US]

Inventor(s): WRIGHT ANDREW GORDON [US]; CHEN KAI [US]; WU HUNG-CHIN [US]

Summary

Provided are methods of making a three-dimensional object that include (a) producing an intermediate object from a polymerizable liquid that includes heat expandable microspheres by additive manufacturing; (b) optionally, cleaning the intermediate object; and (c) moisture curing the intermediate object to form the three-dimensional object, said moisture curing performed before or after heating the object for a time and at a temperature sufficient to expand the microspheres. Objects produced by the methods are also provided.

Exemple:

Resin Composition D produces a polyurea/polyurethane polymer with a modulus of 145 MPa after printing, moisture cure, and dry bake. The resin included 70.01 parts by weight of an APBU. Example DI is a control wherein no microspheres are added to Resin Composition D. Examples D2 and D3 were made by adding expandable microspheres to Resin Composition D. Solid parts were then 3D printed using Carbon Inc.'s continuous liquid interface production (CLIP) technology and spun clean with a centrifugal spinner. The parts in Examples DI and D2 were then moisture cured at 95 °C and >95% relative humidity for 2 hours (MC2), and then dry baked at 120 °C for 8 hours. The parts in Example D3 were heated to 150 °C for 30 minutes for thermal expansion, then moisture cured at 95 °C and >95% relative humidity for 2 hours (MC2), followed by a dry bake at 120 °C for 8 hours.

8.Polycaprolactone having improved sls 3d-printing sintering properties

Patent number: WO2025073518A1

Publication date: 2025-04-10

Applicant(s): EVONIK OPERATIONS GMBH [DE]

Inventor(s): GOTTSTEIN THOMAS [DE]; SEIBEL MANUEL [DE]; SCHATTKA JAN HENDRIK [DE]; GRIMM SILKO [DE]

Summary

The present invention refers to a compound particle for 3D printing obtained by hot melt extruding 50 to 90 wt.-% at least one polycaprolactone based polymer; 10 to 50 wt.-% of at least one filler; and optionally up to 5 wt.-% of at least one additive into pellets, wherein the total weight of the components is 100 wt.-%, and thereafter milling the pellets to obtain the compound particle. Furthermore, the present invention refers to a composition for 3D printing comprising a) 94 to 99 wt.-% of at least one compound particle according to the present invention; b) 1 to 6 wt.-% of at least one filler; and c) optionally up to 5 wt.-% of at least one additive; wherein the total weight of a) to c) is 100 wt.-%. Moreover, the present invention refers to a 3D printing method comprising the compound particle or the composition according to the present invention, the article obtained by the 3D printing method and its use as a substitute for bones or a scaffold for broken bones.

#	Amount Polymer	Polymer	Amount filler 1	Type filler 1	Amount filler 2	Type filler 2	IR Absorption at 10,600 nm
	[%]		[%]		[%]		[%]
C1	100	RESOMER® C 212	0	n.n.	-	n.n.	7.3
C2	91	RESOMER® C 212	9.0	unsintered hydroxyapatite (1µm)	-		-
C3	80	RESOMER® C 212	20.0	unsintered hydroxyapatite (1µm)	-		-
1	70	RESOMER® C 212	30.0	ß-tricalciumphosphate	-	n.n.	18.4
2	70	RESOMER® C 212	30.0	Bioglas 58 S	-	n.n.	21.4
3	70	RESOMER® C 212	30.0	unsintered hydroxyapatite (1µm)	-	n.n.	18.0
8	81	RESOMER® C 212	9.0	unsintered hydroxyapatite (1µm)	10	hydroxyapatite (50µm)	11.5
9	76	RESOMER® C 212	9.0	unsintered hydroxyapatite (1µm)	15	hydroxyapatite (50µm)	12.5
10	71	RESOMER® C 212	9.0	unsintered hydroxyapatite (1µm)	20	hydroxyapatite (50µm)	14.1
11	51	RESOMER® C 212	9.0	unsintered hydroxyapatite (1µm)	40	hydroxyapatite (50µm)	21.9
12	90	RESOMER® C 212	10.0	ß-tricalciumphosphate	-	n.n.	12.2

Table 1. Examples and Comparative examples (indicated with C). Comparative examples are commonly used blends, while the examples refer to the compound particles obtained via hot melt extrusion.