

## Search History:

### Limited Classification Search

The Patent Analyst performed a limited classification search within the following US, IPC, CPC, ECLA, or F-Term classification areas:

CPC Class/Subclass(es): B22F 1/00; B22F 1/0081; B22F 1/0096; B22F 3/00; B33Y 70/00 (2017.08)

IPC(8) Class/Subclass(es): B22F 1/00; B22F 3/00; B22F 3/10; B22F 3/12; B33Y 70/00 (2017.01)

U.S. Class/Subclass(es): 264/109; 264/128; 419/1; 419/26; 419/28; 419/61; 419/66

See Global Search Results.

### Global Patent Literature Text Search

The Patent Analyst performed the following global text search, which was not limited by classification but may or may not have been limited by other criteria:

Questel Orbit: <https://www.orbit.com>

#	Search query	Results
1	PD<2017-08-31	55216637
2	((DESKTOP D METAL)/PA/OPA/PAH/OWR/REAS OR ("DESKTOP METAL")/PANA )	9
3	((MYERBERG D JONAH)/IN/OIN/INH/INV OR ("MYERBERG JONAH S")/INNA OR ("MYERBERG JONAH")/INNA OR ("MYERBERG JONAH S.")/INNA OR ("MYERBERG JONAH SAMUEL")/INNA OR ("JONAH MYERBERG")/INNA OR ("JONAH S MYERBERG")/INNA )	13
4	((BOSE D ANIMESH)/IN/OIN/INH/INV OR ("BOSE ANIMESH")/INNA OR ("BOSE ANIMA B")/INNA OR ("BOSE ANIMA B.")/INNA OR ("BOSE ANIMA")/INNA OR ( "ANIMA,B. BOSE")/INNA )	17
5	2 OR 3 OR 4	32
6	5 AND (PRINT+ OR THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR ADDITIVE MANUFACTUR+) AND (REFLOW+ OR RE FLOW+)	0
7	5 AND (PRINT+ OR THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR ADDITIVE MANUFACTUR+) AND +FLOW+	7
8	5 AND (PRINT+ OR THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR ADDITIVE MANUFACTUR+) AND +FLOW+ AND (+GRANULE? OR +GRAIN?) AND AGGLOMERAT+	0
9	5 AND (PRINT+ OR THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR ADDITIVE MANUFACTUR+) AND +FLOW+ AND AGGLOMERAT+	0
10	(US20170173692 OR US20170120339)/PN	2
11	5 AND (MICROSTRUCTURE? OR MICRO STRUCTURE?) AND BROWN?	0

12	(PRINT+ OR THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR ADDITIVE MANUFACTUR+) AND (AGGLOMERAT+ 9D (+PARTICLE? OR +PARTICULATE? OR +POWDER+ OR +GRAIN? OR +GRANUL+))	3120
13	(PRINT+ OR THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR ADDITIVE MANUFACTUR+) AND (AGGLOMERAT+ 9D (+PARTICLE? OR +PARTICULATE? OR +POWDER+ OR +GRAIN? OR +GRANUL+)) AND METAL+	1000
14	(PRINT+ OR THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR ADDITIVE MANUFACTUR+) AND ((AGGLOMERAT+ OR CLUMP+ OR AGGREGAT+) 9D (+PARTICLE? OR +PARTICULATE? OR +POWDER+ OR +GRAIN? OR +GRANUL+) 9D METAL+)	444
15	(THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR ADDITIVE MANUFACTUR+) AND ((AGGLOMERAT+ OR CLUMP+ OR AGGREGAT+) 9D (+PARTICLE? OR +PARTICULATE? OR +POWDER+ OR +GRAIN? OR +GRANUL+) 9D METAL+) AND (PRINT+ OR ADDITIVE MANUFACTUR+)	14
16	5 AND (MICROSTRUCTURE? OR MICRO STRUCTURE?) AND (BROWN? OR SINTER+)	0
17	5 AND (BROWN? OR SINTER+)	9
18	EP1770176/PN	1
19	..CITBF NOSOURCE SS 18 1 RANKED	9
20	..CITBF NOSOURCE SS 19 SET	873
21	20 AND 14	1
22	20 AND 13	9
23	22 AND BIND+	7
24	(US9248501 OR US9757801 OR US20170333994 OR EP1770176 OR US20170021425)/PN	5
25	(THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR "3D" OR "3 D" OR "3-D" OR ADDITIVE MANUFACTUR+) AND ((AGGLOMERAT+ OR CLUMP+ OR AGGREGAT+) 9D (+PARTICLE? OR +PARTICULATE? OR +POWDER+ OR +GRAIN? OR +GRANUL+) 9D METAL+) AND (PRINT+ OR ADDITIVE MANUFACTUR+)	22
26	25 NOT 15	8
27	((((THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR "3D" OR "3 D" OR "3-D") 5D PRINT+) OR ADDITIVE MANUFACTUR+ OR RAPID PROTOTYP+ OR FUSED FILAMENT+ OR SELECTIVE LASER OR FUSED DEPOSIT+ OR ELECTRONIC BEAM MELT+) AND ((AGGLOMERAT+ OR CLUMP+ OR AGGREGAT+) 9D (+PARTICLE? OR +PARTICULATE? OR +POWDER+ OR +GRAIN? OR +GRANUL+) 9D METAL+)	16

28	27 NOT 25	3
29	((((THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR "3D" OR "3 D" OR "3-D") 5D PRINT+) OR ADDITIVE MANUFACTUR+ OR RAPID PROTOTYP+ OR FUSED FILAMENT+ OR SELECTIVE LASER OR FUSED DEPOSIT+ OR ELECTRONIC BEAM MELT+) AND ((AGGLOMERAT+ OR CLUMP+ OR AGGREGAT+) 9D (+PARTICLE? OR +PARTICULATE? OR +POWDER+ OR +GRAIN? OR +GRANUL+) 9D METAL+)	16
30	((((THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR "3D" OR "3 D" OR "3-D") 5D PRINT+) OR ADDITIVE MANUFACTUR+ OR RAPID PROTOTYP+ OR FUSED FILAMENT+ OR SELECTIVE LASER OR FUSED DEPOSIT+ OR ELECTRONIC BEAM MELT+) AND (AGGLOMERAT+ 9D (+PARTICLE? OR +PARTICULATE? OR +POWDER+ OR +GRAIN? OR +GRANUL+)) AND METAL+	62
31	30 NOT ( 29 OR 27 OR 25)	50
32	(US9248501 OR US9757801 OR US20170333994 OR EP1770176 OR US20170021425 OR US2017008082 OR CN106636844 OR CN106216705)/PN	8
33	32 AND (FLOW+ OR SPREAD+ OR SMOOTH+)	2
34	30 AND (FLOW+ OR SPREAD+ OR SMOOTH+)	30
35	5 AND SPREAD+ AND (REFLOW+ OR RE FLOW+)	0
36	5 AND SINT+ AND (MATRIX+ OR MATRIC+)	4
37	((((THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR "3D" OR "3 D" OR "3-D") 5D PRINT+) OR ADDITIVE MANUFACTUR+ OR RAPID PROTOTYP+ OR FUSED FILAMENT+ OR SELECTIVE LASER OR FUSED DEPOSIT+ OR ELECTRONIC BEAM MELT+) AND SINT+ AND (MATRIX+ OR MATRIC+) AND BIND+	73
38	((((THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR "3D" OR "3 D" OR "3-D") 5D PRINT+) OR ADDITIVE MANUFACTUR+ OR RAPID PROTOTYP+ OR FUSED FILAMENT+ OR SELECTIVE LASER OR FUSED DEPOSIT+ OR ELECTRONIC BEAM MELT+) AND SINT+ AND (MATRIX+ OR MATRIC+) AND BIND+ AND MICRO+	19
39	WO2017070061/PN	1
40	..CITBF NOSOURCE SS 39 1 RANKED	25
41	..CITBF NOSOURCE SS 40 1 RANKED	147
42	41 AND ((THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR "3D" OR "3 D" OR "3-D") 5D PRINT+) OR ADDITIVE MANUFACTUR+ OR RAPID PROTOTYP+ OR FUSED FILAMENT+ OR SELECTIVE LASER OR FUSED DEPOSIT+ OR	6

	ELECTRONIC BEAM MELT+) AND SINT+ AND (MATRIX+ OR MATRIC+ OR MICRO+) AND (BIND+ OR ADHE+)	
43	((((THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR "3D" OR "3 D" OR "3-D") 5D PRINT+) OR ADDITIVE MANUFACTUR+ OR RAPID PROTOTYP+ OR FUSED FILAMENT+ OR SELECTIVE LASER OR FUSED DEPOSIT+ OR ELECTRONIC BEAM MELT+) AND SINT+ AND ((MATRIX+ OR MATRIC+ OR MICRO+) 9D (DISPER+ OR DISTRIBUT+) AND (BIND+ OR ADHE+)	27
44	32 AND (PATTERN+ OR SHAP+)	5
45	32 AND SINT+	3
46	32 AND (POLYETHYLENE OR POLYLACTIC ACID? OR POLYACRYLIC ACID? OR POLYPROPYLEN+)	1
47	((((THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR "3D" OR "3 D" OR "3-D") 5D PRINT+) OR ADDITIVE MANUFACTUR+ OR RAPID PROTOTYP+ OR FUSED FILAMENT+ OR SELECTIVE LASER OR FUSED DEPOSIT+ OR ELECTRONIC BEAM MELT+) AND ((BIND+ OR ADHE+) 9D (+ETHYLENE OR +LACTIC ACID? OR +LACTATE? OR +ACRYLIC ACID? OR +ACRYLATE? OR +PROPYLENE)) AND (LAYER+ 5D THICK+)	16
48	*MEM "home/QPTLD152/My Lists/2017/December 2017/Particle Agglomeration/Particle Agglomeration" /XPN /APIID	5
49	((((THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR "3D" OR "3 D" OR "3-D") 5D PRINT+) OR ADDITIVE MANUFACTUR+ OR RAPID PROTOTYP+ OR FUSED FILAMENT+ OR SELECTIVE LASER OR FUSED DEPOSIT+ OR ELECTRONIC BEAM MELT+) AND ((BIND+ OR ADHE+) 9D (POLYETHYLENE OR POLYLACTIC ACID? OR POLYACRYLIC ACID? OR POLYPROPYLEN+)) AND (LAYER+ 5D THICK+)	4
50	((((THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR "3D" OR "3 D" OR "3-D") 5D PRINT+) OR ADDITIVE MANUFACTUR+ OR RAPID PROTOTYP+ OR FUSED FILAMENT+ OR SELECTIVE LASER OR FUSED DEPOSIT+ OR ELECTRONIC BEAM MELT+) AND ((BIND+ OR ADHE+) 9D (POLYETHYLENE OR POLYLACTIC ACID? OR POLYACRYLIC ACID? OR POLYPROPYLEN+))	65
51	US20150035209/PN	1
52	((((THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR "3D" OR "3 D" OR "3-D") 5D PRINT+) OR ADDITIVE MANUFACTUR+ OR RAPID PROTOTYP+ OR FUSED FILAMENT+ OR SELECTIVE LASER OR FUSED DEPOSIT+ OR ELECTRONIC BEAM MELT+) AND (BURN+OFF OR BURN+ OFF) AND MELT+	9

53	*MEM "home/QPTLD152/My Lists/2017/December 2017/Particle Agglomeration/Particle Agglomeration" /XPN /APID	5
54	(WO2017070061 OR US9757801)/PN	2
55	*MEM "home/QPTLD152/My Lists/2017/December 2017/Particle Agglomeration/Particle Agglomeration" /XPN /APID	5
56	(B22F-001/0096 AND B33Y-070/00)/CPC	7
57	(B22F-001/00 OR B22F-001/0081 OR B22F-001/0096 OR B22F-003/00 OR B33Y-070/00)/CPC	13154
58	(B22F-001/00 OR B22F-003/00 OR B22F-003/10 OR B22F-003/12 OR B33Y-070/00)/IPC	40594
59	(264109 OR 264128 OR 419001 OR 419026 OR 419028 OR 419061 OR 419066)/PCL	4536
60	57 AND (((THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR "3D" OR "3 D" OR "3-D") 5D PRINT+) OR ADDITIVE MANUFACTUR+ OR RAPID PROTOTYP+ OR FUSED FILAMENT+ OR SELECTIVE LASER OR FUSED DEPOSIT+ OR ELECTRONIC BEAM MELT+) AND (+POWDER+ OR +PARTICULATE? OR +PARTICLE?) AND (BIND+ OR BOND+ OR ADHE+) AND (+GRANUL+ OR +GRAIN?))	121
61	58 AND (((THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR "3D" OR "3 D" OR "3-D") 5D PRINT+) OR ADDITIVE MANUFACTUR+ OR RAPID PROTOTYP+ OR FUSED FILAMENT+ OR SELECTIVE LASER OR FUSED DEPOSIT+ OR ELECTRONIC BEAM MELT+) AND (+POWDER+ OR +PARTICULATE? OR +PARTICLE?) AND (BIND+ OR BOND+ OR ADHE+) AND (+GRANUL+ OR +GRAIN?))	112
62	59 AND (((THREE DIMENS+ OR "3 DIMENSION" OR "3 DIMENSIONS" OR "3 DIMENSIONAL" OR "3D" OR "3 D" OR "3-D") 5D PRINT+) OR ADDITIVE MANUFACTUR+ OR RAPID PROTOTYP+ OR FUSED FILAMENT+ OR SELECTIVE LASER OR FUSED DEPOSIT+ OR ELECTRONIC BEAM MELT+) AND (+POWDER+ OR +PARTICULATE? OR +PARTICLE?) AND (BIND+ OR BOND+ OR ADHE+) AND (+GRANUL+ OR +GRAIN?))	6
63	60 OR 61 OR 62	144
64	63 AND (SPREAD+ OR THICK+)	36

Google Patents: <https://patents.google.com>

#	Search query	Results
1	(additive manufacturing OR three dimensional printing) metallic particles agglomerated	7,980
2	(additive manufacturing OR three dimensional printing) metallic (particles OR powder) (agglomerate OR aggregate OR clump)	7,900
3	(additive manufacturing OR three dimensional printing) metallic (particles OR powder) (agglomerate OR aggregate OR clump) reflow	226
4	(additive manufacturing OR three dimensional printing) metallic (particles OR powder) (agglomerate OR aggregate OR clump) spread (reflow OR flow again)	1,750
5	(additive manufacturing OR three dimensional printing) binder sinter microstructure matrix	1,690
6	(additive manufacturing OR three dimensional printing) metallic (particles OR powder) (agglomerate OR aggregate OR clump) binder (flow OR spread OR smooth)	4,550
7	(additive manufacturing OR 3D printing) powder bed spread reflow	99
8	(additive manufacturing OR 3D printing) powder bed spread (reflow OR rearrange)	729
9	(additive manufacturing OR 3D printing) powder bed spread (reflow OR rearrange OR respread)	1,240
10	(additive manufacturing OR 3D printing) layer binder sinter microstructure	2,680
11	sinter microstructures distributed in a matrix	16,800
12	(additive manufacturing OR 3D printing) sinter microstructures distributed in a matrix	2,370
13	(additive manufacturing OR 3D printing) composite particle sinter (microstructures OR microfeatures OR matrix)	10,300
14	(additive manufacturing OR 3D printing) composite particle sinter (microstructures OR microfeatures OR matrix) binder	6,440
15	(3D printing OR additive manufacturing) binder (polyethylene glycol OR polyethylene OR polylactic acid OR polyacrylic acid OR polypropylene) thickness microns	11,100
16	(3D printing OR additive manufacturing) binder (polyethylene glycol OR polyethylene OR polylactic acid OR polyacrylic acid OR polypropylene) layer thickness microns	10,600
17	(3D printing OR additive manufacturing) metal (powder OR particles) binder (polyethylene glycol OR polyethylene OR polylactic acid OR polyacrylic acid OR polypropylene) layer thickness microns	7,990

### Computer Accessed Text Databases Searched

The Patent Analyst searched the following computer accessed text databases:

Google: <https://www.google.com/>

#	Search query	Results
1	(additive manufacturing OR three dimensional printing) metallic particles agglomerated	1,400,000
2	(additive manufacturing OR three dimensional printing) metallic (particles OR powder) (agglomerate OR aggregate OR clump)	2,080,000
3	(additive manufacturing OR three dimensional printing) metallic (particles OR powder) (agglomerate OR aggregate OR clump) reflow	42,700
4	(additive manufacturing OR three dimensional printing) metallic (particles OR powder) (agglomerate OR aggregate OR clump) spread (reflow OR flow again)	1,220,000
5	(additive manufacturing OR three dimensional printing) binder sinter microstructure matrix	1,150,000
6	(additive manufacturing OR three dimensional printing) metallic (particles OR powder) (agglomerate OR aggregate OR clump) spread (reflow OR flow again)	936,000
7	(additive manufacturing OR 3D printing) powder bed spread reflow	18,100
8	(additive manufacturing OR 3D printing) powder bed spread (reflow OR rearrange)	52,800
9	(additive manufacturing OR 3D printing) powder bed spread (reflow OR rearrange OR respread)	53,300
10	(additive manufacturing OR 3D printing) layer binder sinter microstructure	783,000
11	sinter microstructures distributed in a matrix	1,040,000
12	(additive manufacturing OR 3D printing) sinter microstructures distributed in a matrix	568,000
13	(additive manufacturing OR 3D printing) composite particle sinter (microstructures OR microfeatures OR matrix)	949,000
14	(additive manufacturing OR 3D printing) composite particle sinter (microstructures OR microfeatures OR matrix) binder	510,000
15	(3D printing OR additive manufacturing) binder (polyethylene glycol OR polyethylene OR polylactic acid OR polyacrylic acid OR polypropylene) thickness microns	98,800
16	(3D printing OR additive manufacturing) binder (polyethylene glycol OR polyethylene OR polylactic acid OR polyacrylic acid OR polypropylene) layer thickness microns	96,200
17	(3D printing OR additive manufacturing) metal (powder OR particles) binder (polyethylene glycol OR polyethylene OR polylactic acid OR polyacrylic acid OR polypropylene) layer thickness microns	90,600

Date search was completed: 05 December 2017

JM/YLK