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**FIG. 1A**

| Sr. No. | Name                               | Abbreviation | Form           |
|---------|------------------------------------|--------------|----------------|
| 1       | High impact polystyrene            | HIPS         | Filament       |
| 2       | Polystyrene                        | PS           | Food container |
| 3       | Acrylonitrile Butadiene<br>Styrene | ABS          | Filament       |
| 4       | Acrylonitrile Styrene Acrylate     | ASA          | Filament       |
| 5       | Polyethylene                       | PE           | Petri dish     |
| 6       | Polylactic Acid                    | PLA          | Filament       |
| 7       | Polycaprolactone                   | PCL          | Pellet         |
| 8       | Cellulose Acetate                  | CA           | Powder         |
| 9       | Cellulose Acetate Propionate       | CAP          | Powder         |
| 10      | Cellulose Acetate Butyrate         | CAB          | Powder         |

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**FIG. 1B**

| Sr. No. | Name                                  | Abbreviation     | Abbreviation   | Form   |
|---------|---------------------------------------|------------------|----------------|--------|
|         |                                       | in the main text | in the figures |        |
| 1       | Acetone                               |                  | A              | Liquid |
| 2       | Chloroform                            |                  | Ch             | Liquid |
| 3       | Dichloromethane                       | DCM              | Dc             | Liquid |
| 4       | Dimethyl Formamide                    | DMF              | Dm             | Liquid |
| 5       | Dimethyl Sulfoxide                    | DMSO             | Ds             | Liquid |
| 6       | Hand Sanitiser                        | EG               | EG             | Liquid |
| 7       | Carbopol ETD 2020 NF                  | CG               | CG             | Powder |
| 8       | Polyethylene Glycol<br>(Mol. Wt. 300) | PEG              | PEG            | Liquid |
| 9       | Starch                                | Starch           | Starch         | Powder |
| 10      | Laponite Clay<br>EP Grade             | LP               | LP             | Powder |
| 11      | $\alpha$ -Cellulose                   | $\alpha C$       | $\alpha C$     | Powder |

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**FIG. 1C**

| Sr. No. | Polymer | Conc. (w/w%) | Solvent           | Embedding media |
|---------|---------|--------------|-------------------|-----------------|
| 1       | HIPS    | 20-30        | Acetone           | CG, EG          |
| 2       | PS      | 25-30        | Acetone, DMF      | CG, EG          |
| 3       | ABS     | 20-60        | Acetone, DMF, DCM | CG, EG          |
| 4       | ASA     | 30-50        | Acetone           | CG, EG          |
| 5       | PE      | 20-30        | Acetone, DCM      | CG, EG          |
| 6       | PLA     | 15-30        | DCM, Chloroform   | EG              |
| 7       | PCL     | 40-60        | DCM, Chloroform   | EG              |
| 8       | CA      | 20-30        | Acetone, DMSO     | CG, EG          |
| 9       | CAP     | 20-30        | Acetone           | CG, EG          |
| 10      | CAB     | 20-30        | Acetone           | CG, EG          |

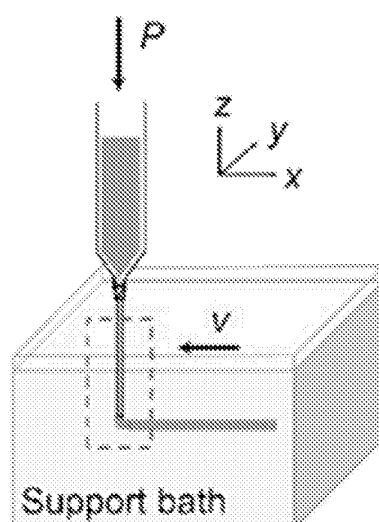
**FIG. 1D**

FIG. 1E

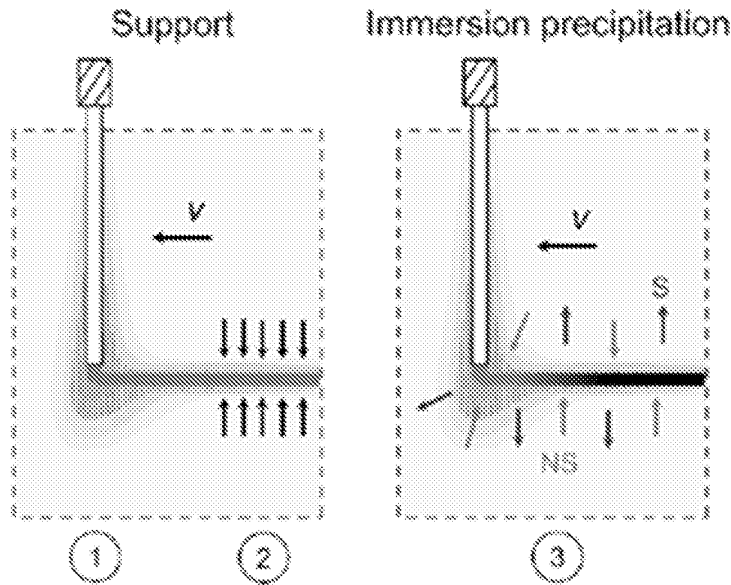


FIG. 1F

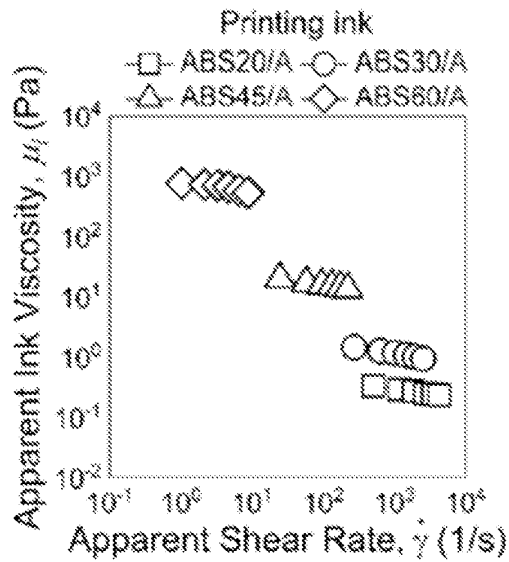


FIG. 1G

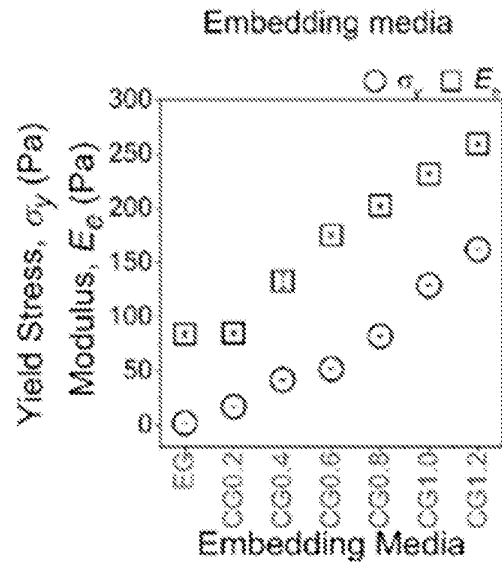


FIG. 1H

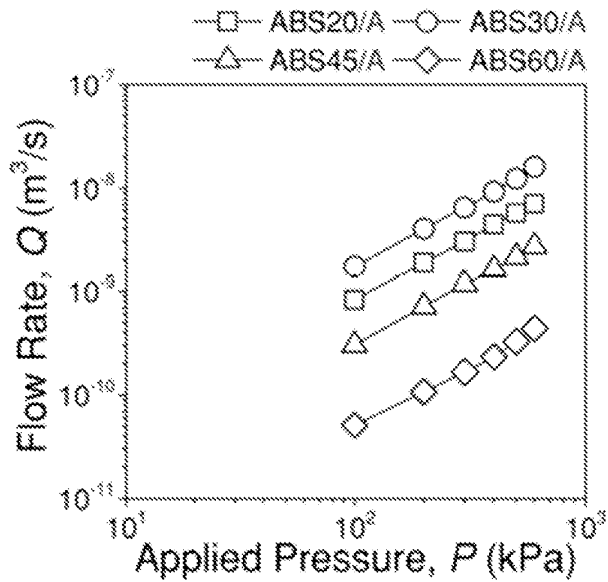


FIG. 1I

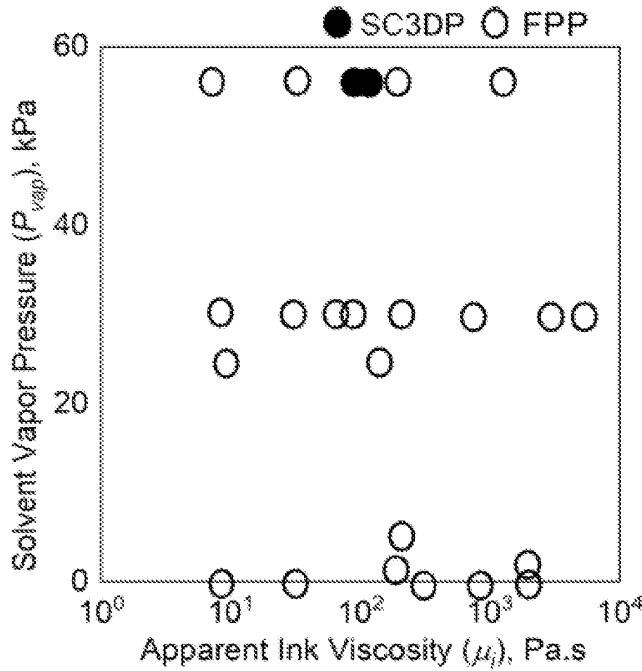


FIG. 2A

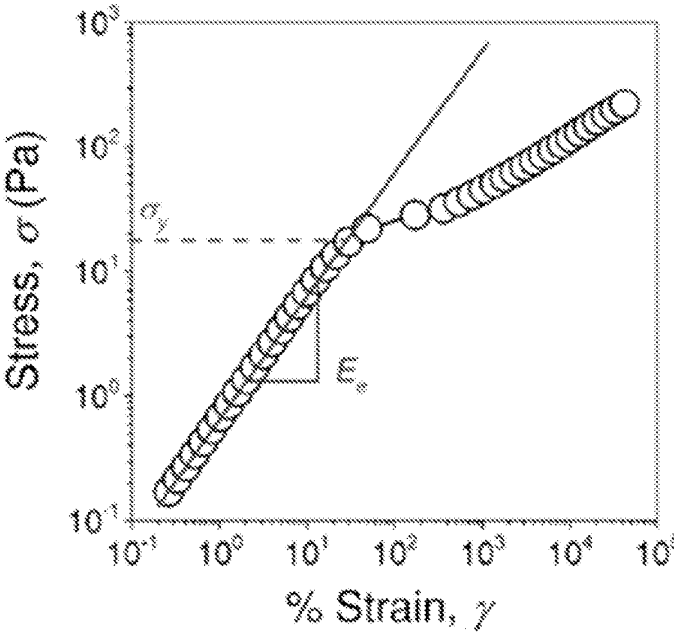


FIG. 2B

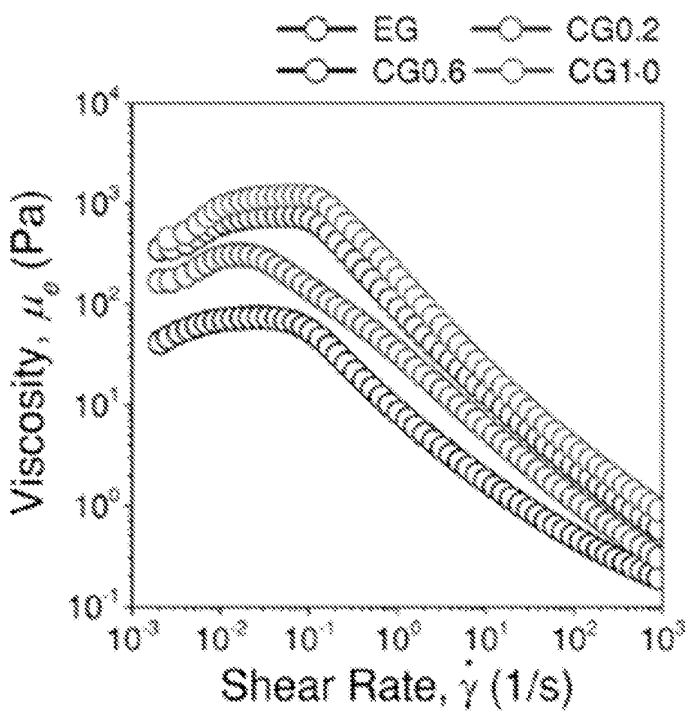


FIG. 3A

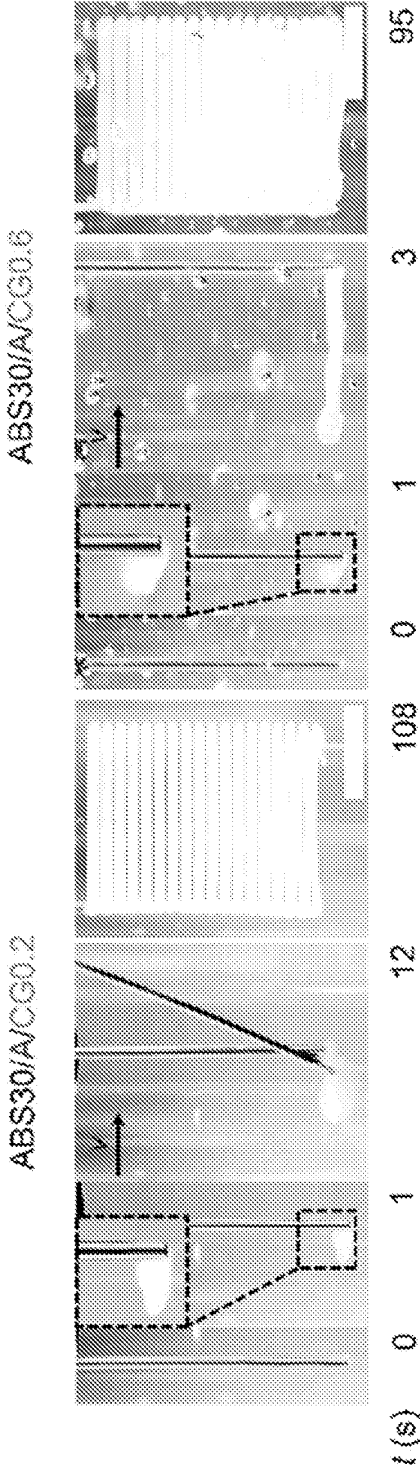


FIG. 3B

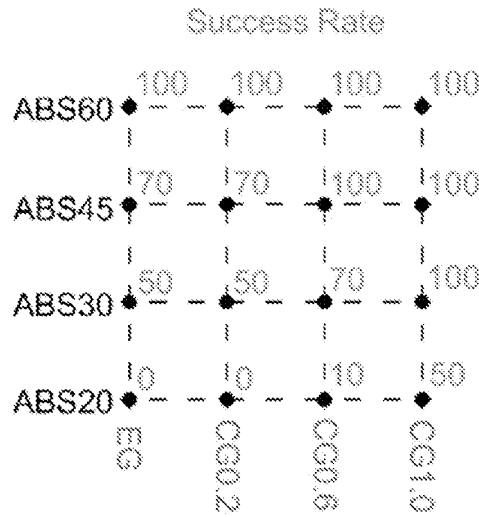


FIG. 4

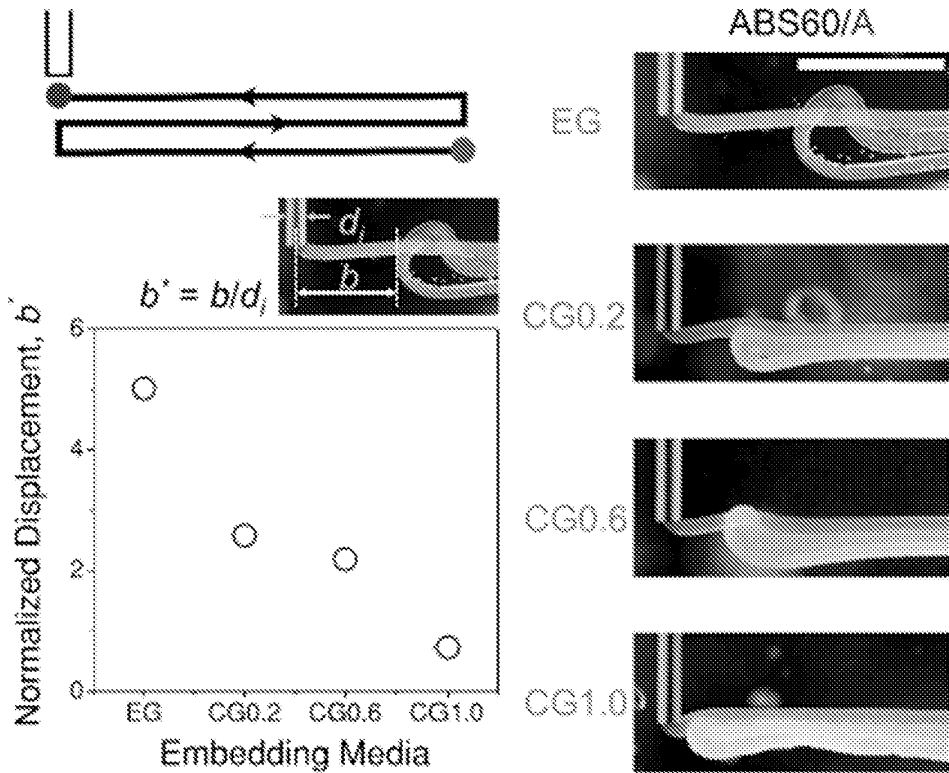


FIG. 5

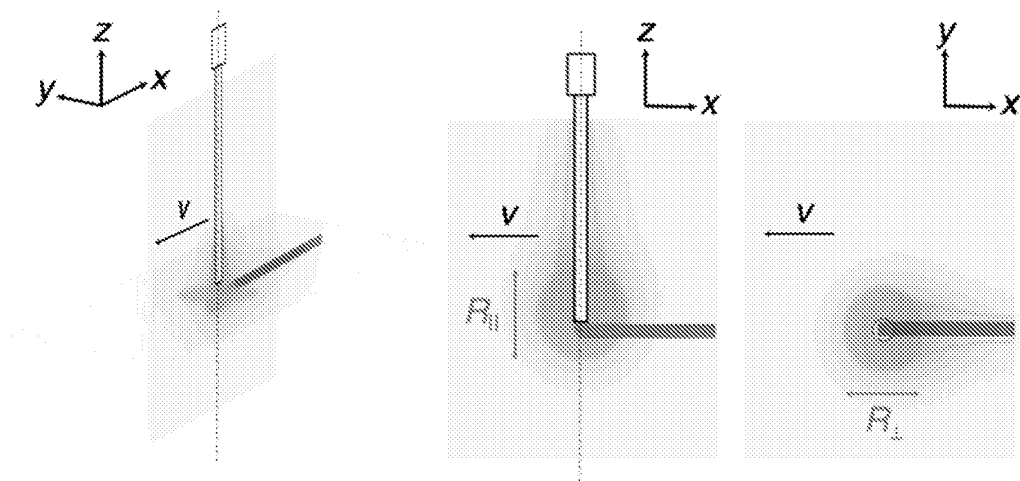


FIG. 6A

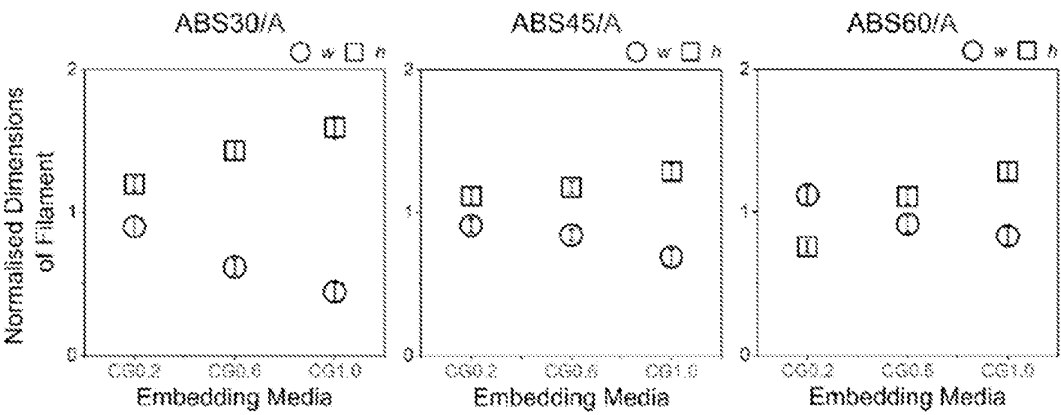


FIG. 6B

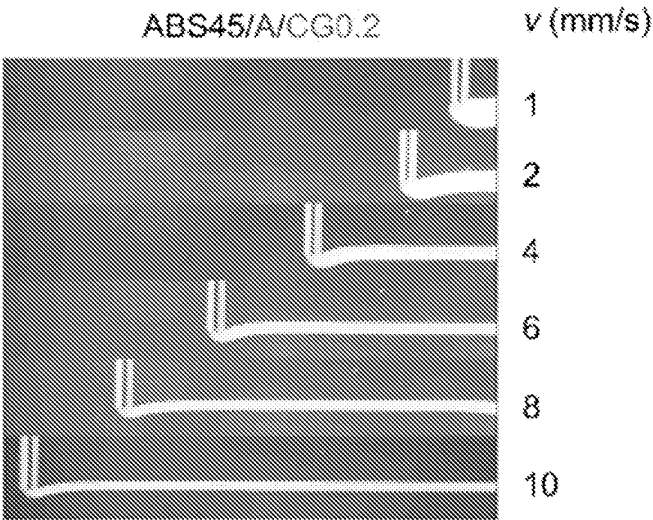
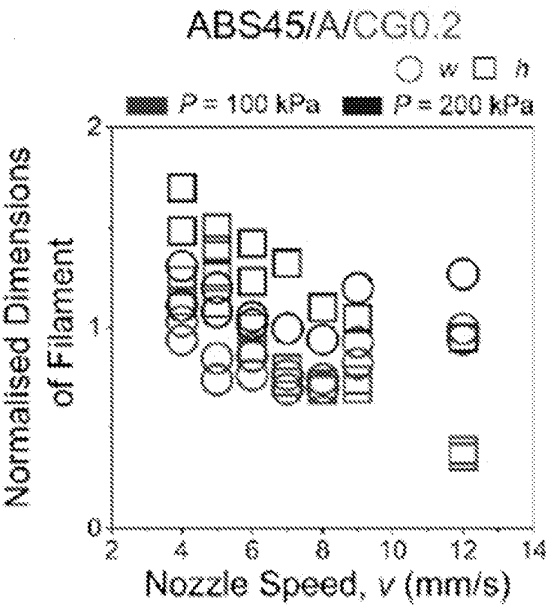


FIG. 6C



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FIG. 7

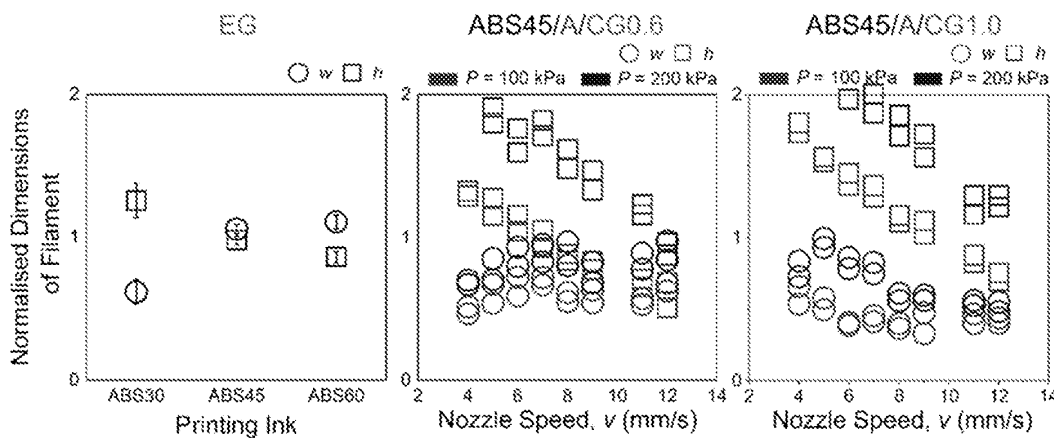
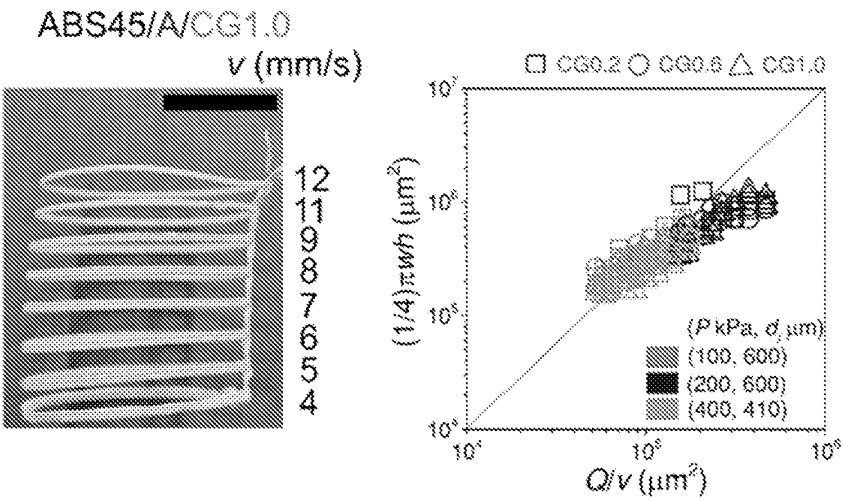


FIG. 8



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FIG. 9

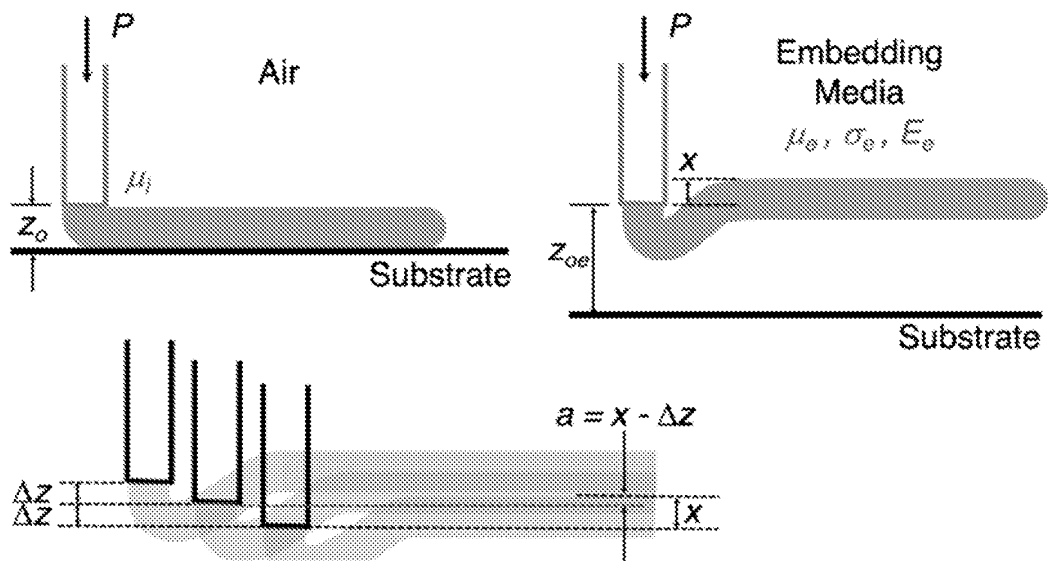


FIG. 10A

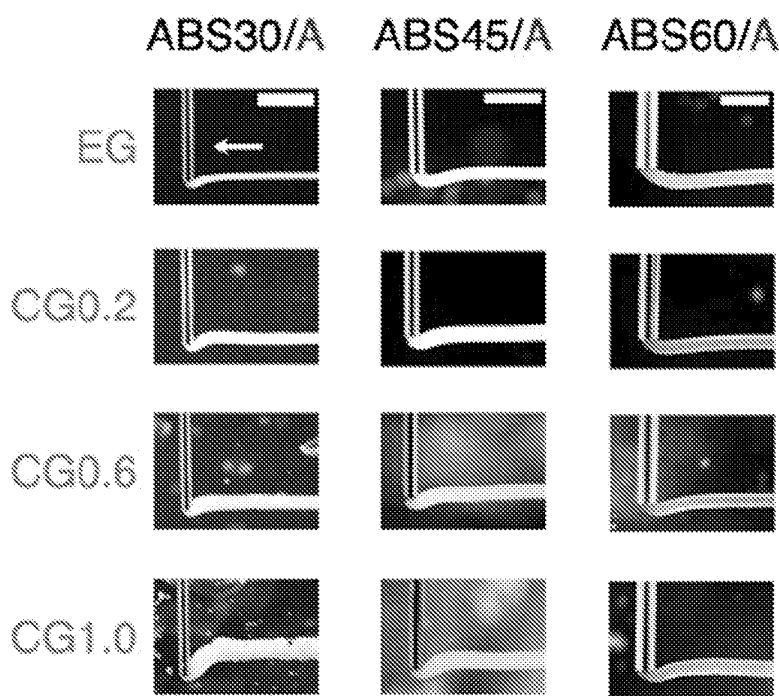


FIG. 10B

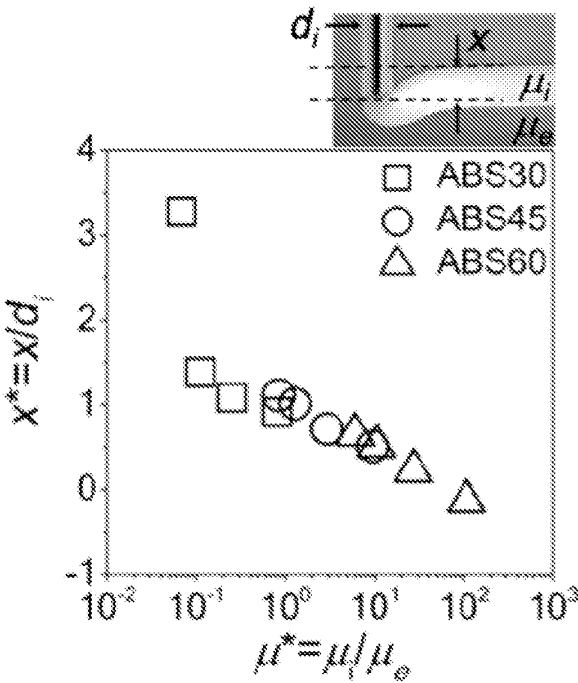
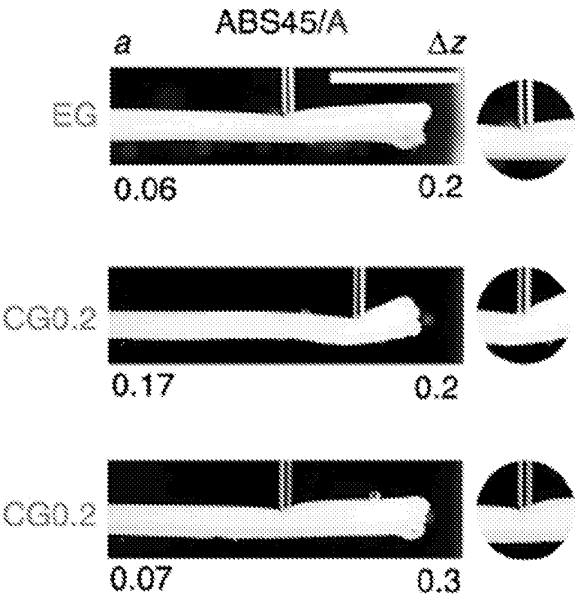
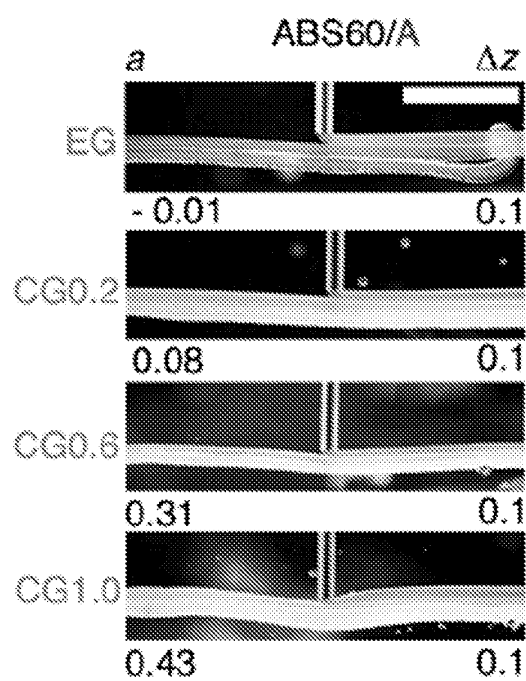


FIG. 10C



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**FIG. 10D**

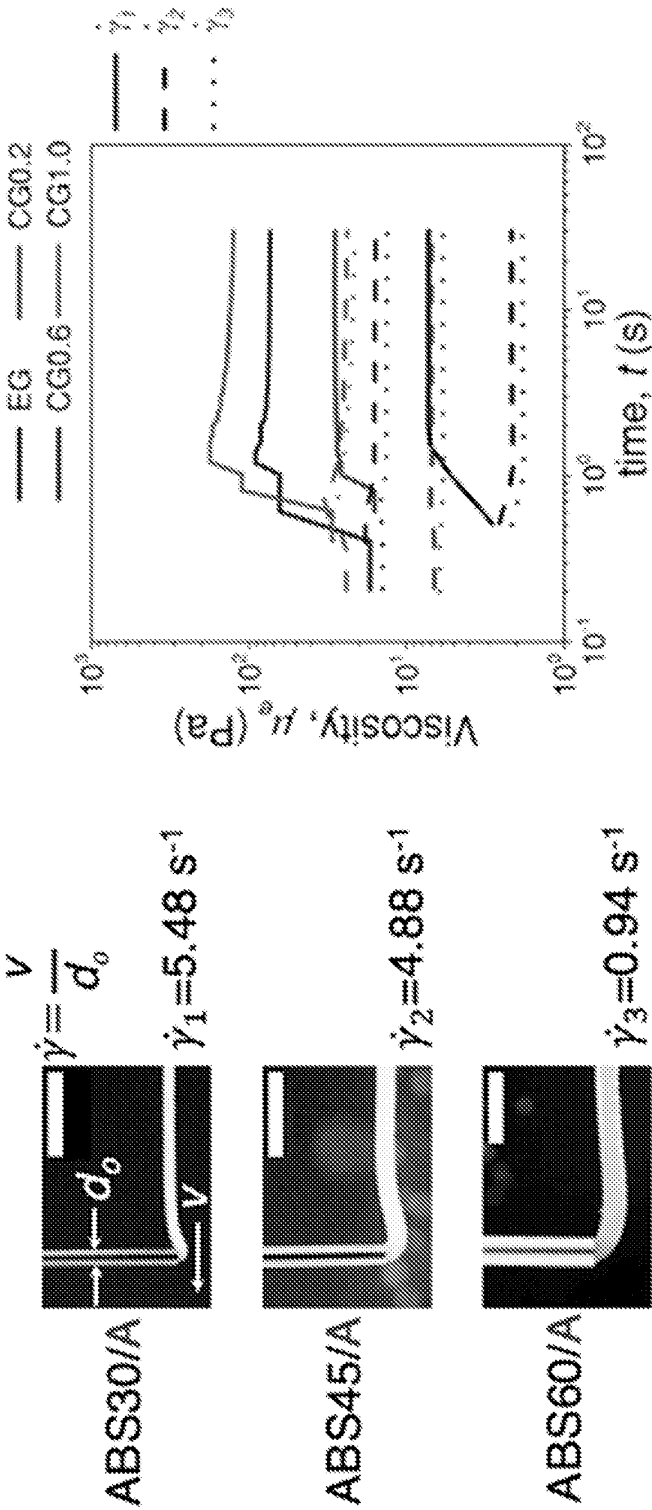


FIG. 11

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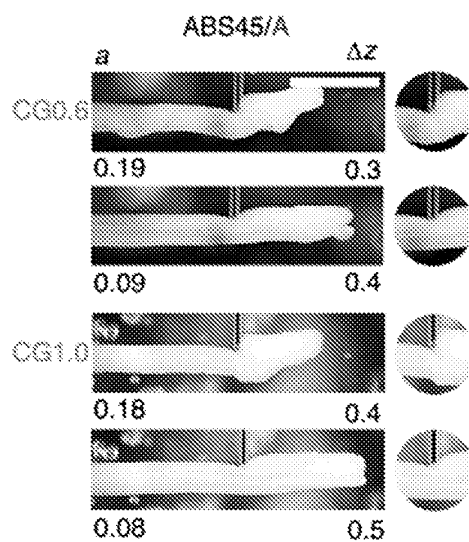
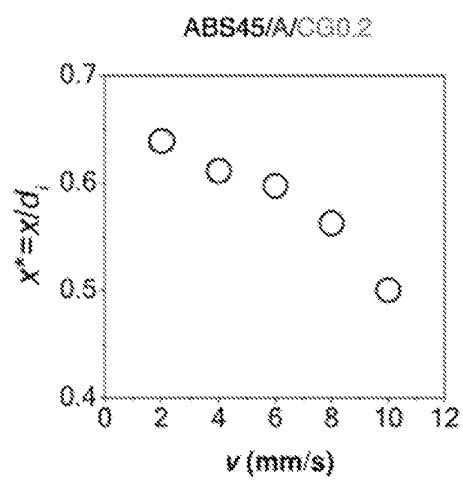
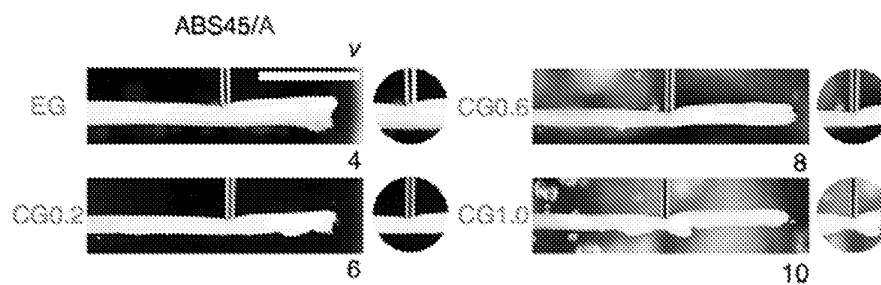
**FIG. 12A****FIG. 12B****FIG. 12C**

FIG. 13A

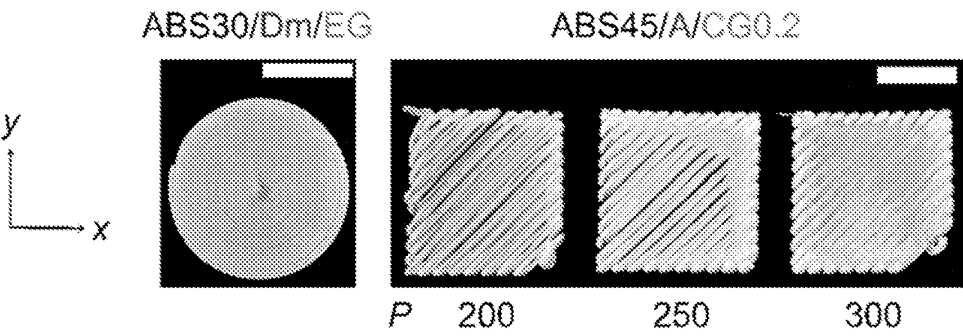


FIG. 13B

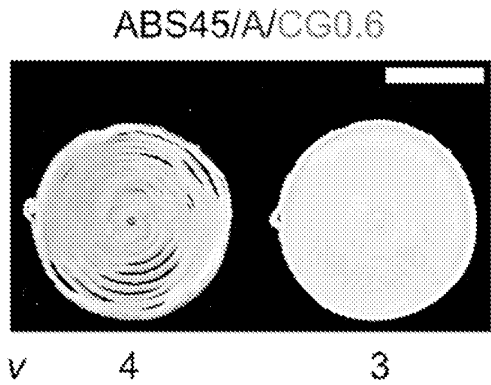
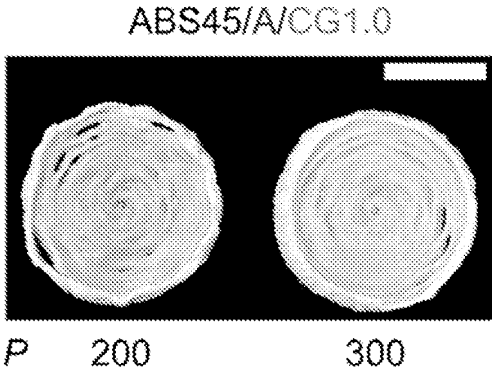


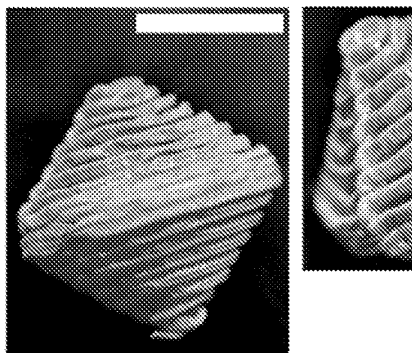
FIG. 13C



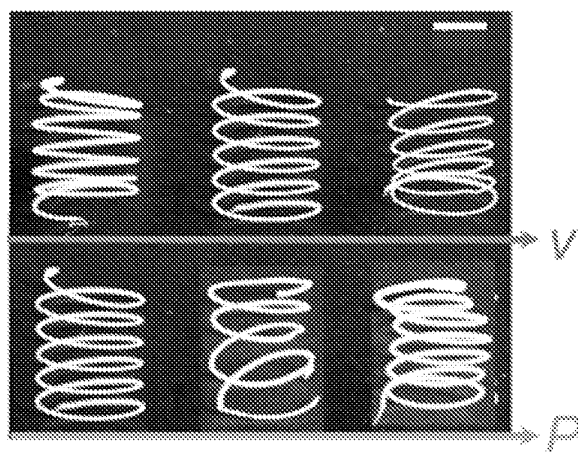
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**FIG. 14A**

ABS60/A/CG1.0

**FIG. 14B**

PLA20/Dc/EG



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FIG. 15A

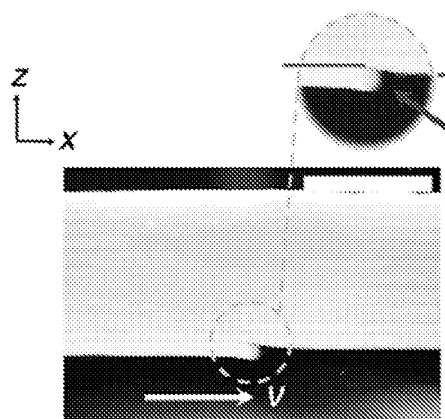


FIG. 15B

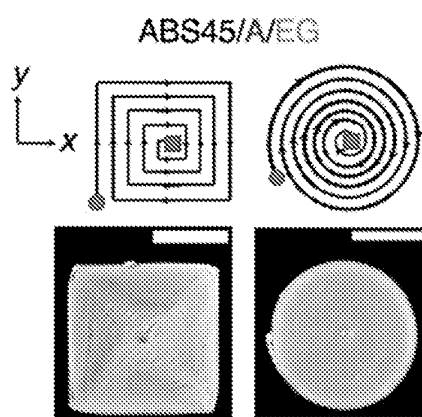
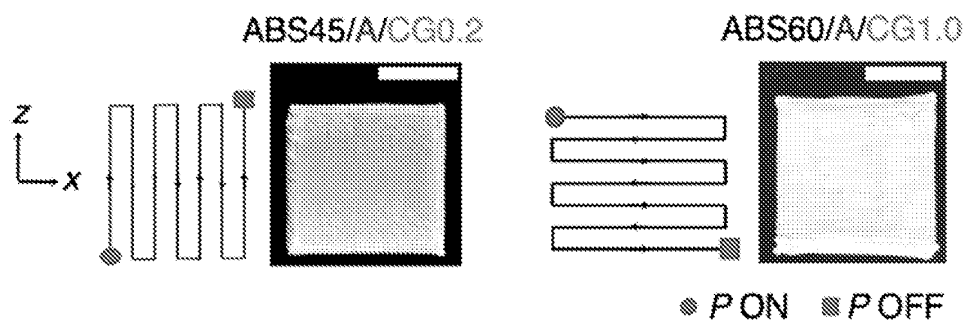
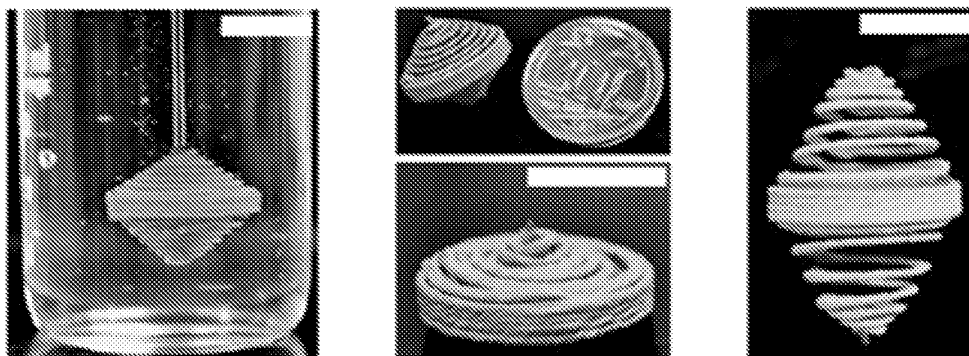


FIG. 15C

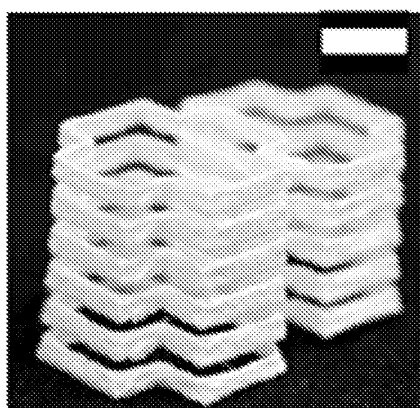


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**FIG. 16A**  
ABS60/A/CG0.2



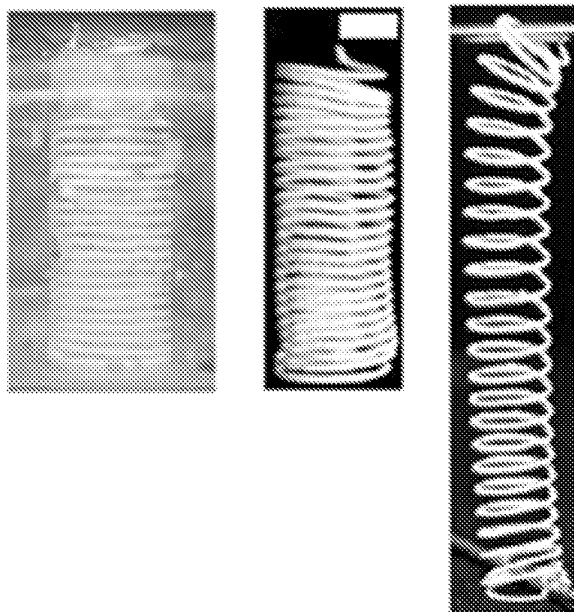
**FIG. 16B**  
ABS45/A/CG0.6



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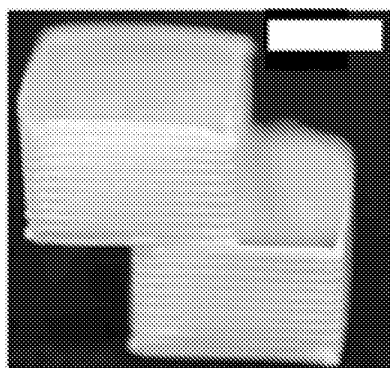
**FIG. 16C**

HIPS30/Dm/CG0.6



**FIG. 16D**

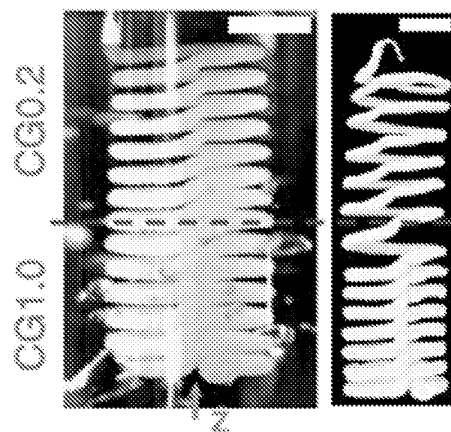
PE40/A/CG0.6



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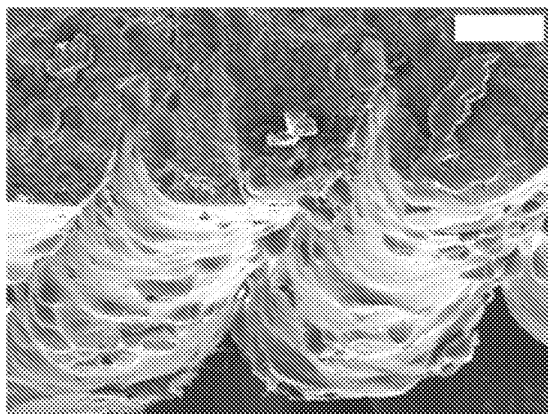
**FIG. 16E**

ABS60/A



**FIG. 17A**

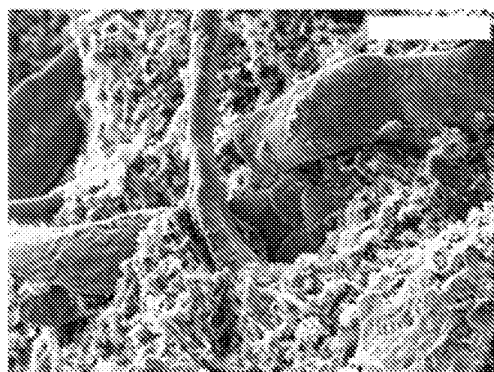
CAP30+Starch30/  
A/CG0.6



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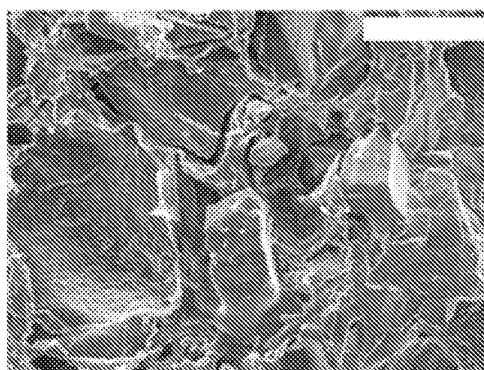
**FIG. 17B**

PCL40+ $\alpha$ C/  
Dm/EG



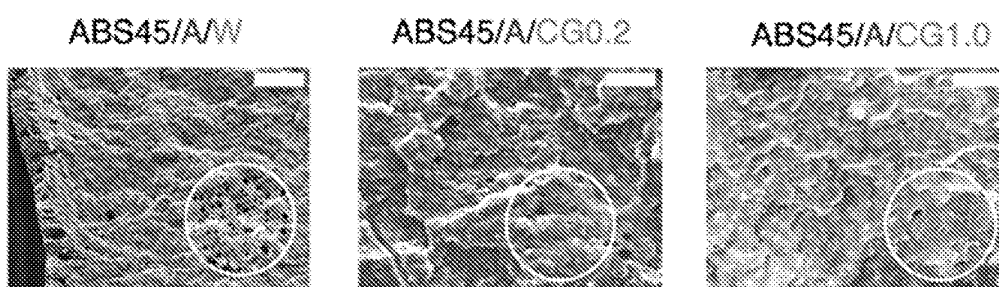
**FIG. 17C**

ABS45+LP20/  
A/CG0.2

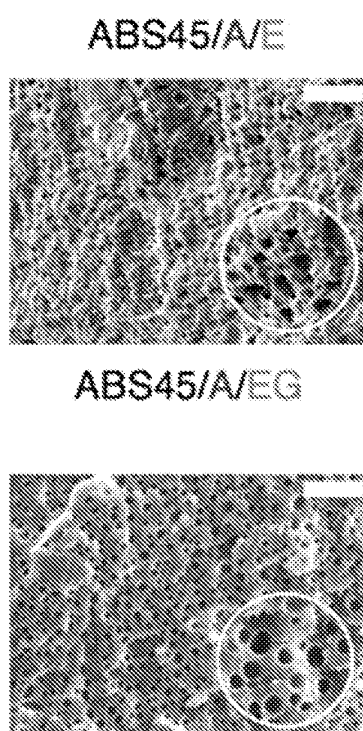


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**FIG. 18A**



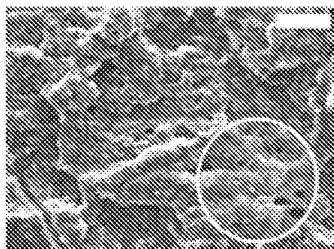
**FIG. 18B**



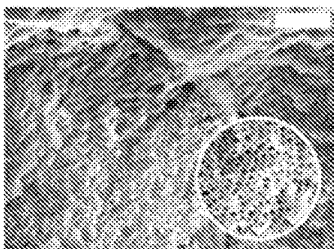
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# FIG. 18C

ABS45/A/CG0.2

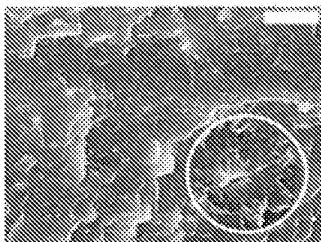


ABS45+PEG40/  
A/CG0.2



# FIG. 18D

ABS60/A/CG0.6



ABS60+PEG20/  
A/CG0.6

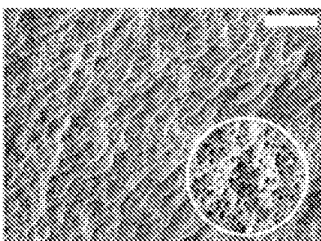


FIG. 19A

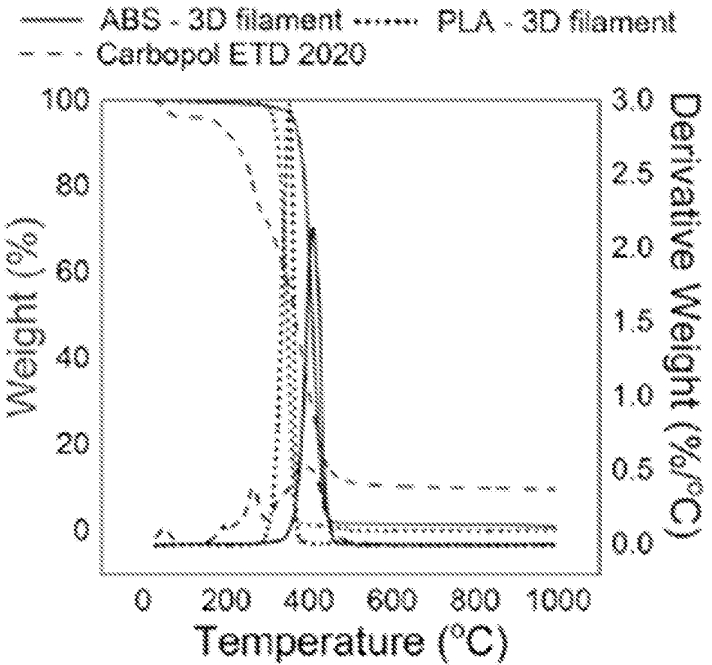


FIG. 19B

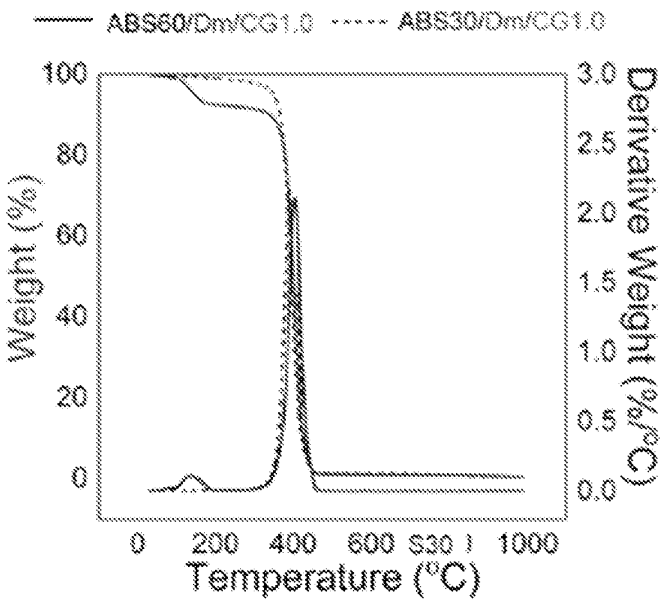


FIG. 19C

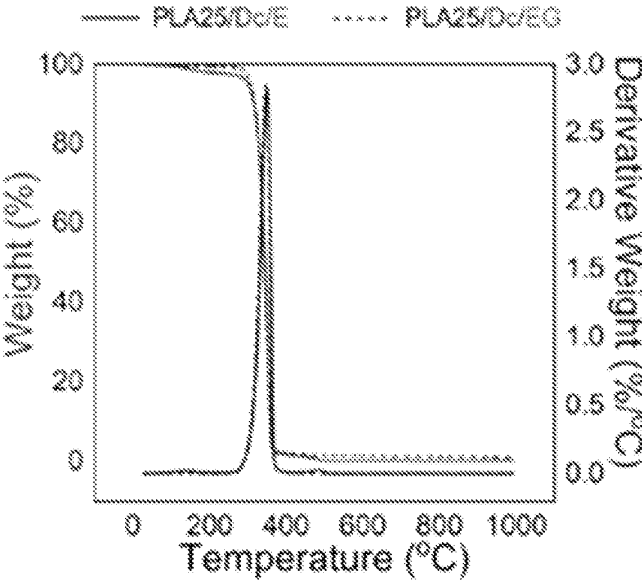
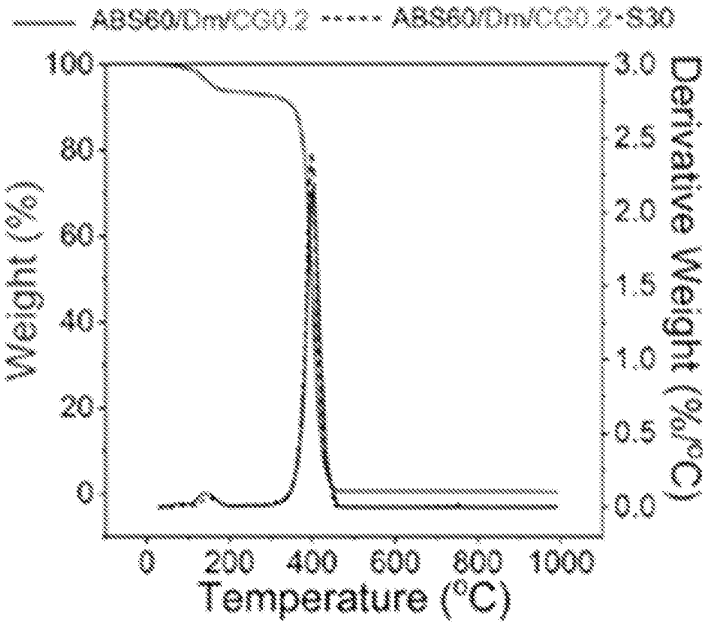


FIG. 19D



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**FIG. 19E**