



## reFILL (f)

**Cost-effective fine epoxy-glass powder filler that can be used as a circular-economy originated filler for various thermoplastic polymers.**

### PROPERTIES

✓ **Average particle size**

0.9  $\mu\text{m}$

✓ **Particles size range**

~0.1-25  $\mu\text{m}$

✓ **Material composition**

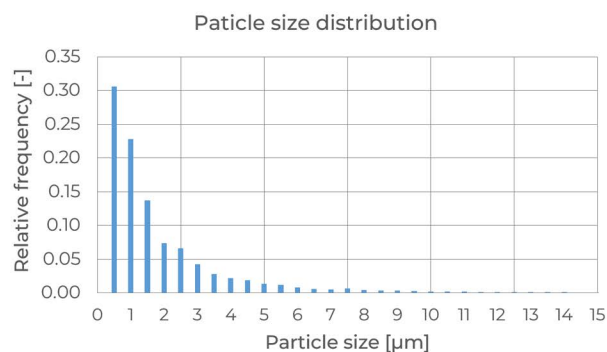
epoxy resin (~48%)

glass (~52%)

(may contain traces of metals)

✓ **Packed bulk density**

~0.5  $\text{g}/\text{cm}^3$



### EFFECT OF 20 WT% ON DIFFERENT TYPES OF POLYPROPYLENE\*

✓ **Polypropylene types**

hPP45 homopolymer, MFR value of 45 g/10 min (230 °C/2.16 kg)

hPP8.2 homopolymer, MFR value of 8.2 g/10 min (230 °C/2.16 kg)

rPP12 random copolymer, MFR value of 12 g/10 min (230 °C/2.16 kg)

bPP13 block copolymer, MFR value of 13 g/10 min (230 °C/2.16 kg)

✓ **Change in properties**

	MFR [g/10 min] 230 °C/2.16 kg	Tensile strength [MPa]	Strain at break [%]	Tensile modulus [MPa]	Charpy impact strength [kJ/m <sup>2</sup> ]
	ISO 1133	ISO 527	ISO 527	ISO 527	ISO 179
hPP45	45	37.2	14	1743	1.4
hPP45+20reFILL(f)	33.6	29.6	5.7	2055	1.3
hPP8.2	8.2	32.6	22	558	1.9
hPP8.2+20reFILL(f)	6.9	29.6	20.5	605	1.7
rPP12	12	21.3	145	439	3.2
rPP12+20reFILL(f)	9.1	19.15	150	334	2.1
bPP13	13	23.7	22	511	7
bPP13+20reFILL(f)	11.5	21.4	21.6	546	2.9

\*compounding was made on a twin screw extruder at 190 °C and 150 rpm. Specimens were injection molded with the following parameters: melt temperature: 200 °C, mold temperature 30 °C, injection speed 50  $\text{cm}^3/\text{s}$ , holding pressure 400 bar.