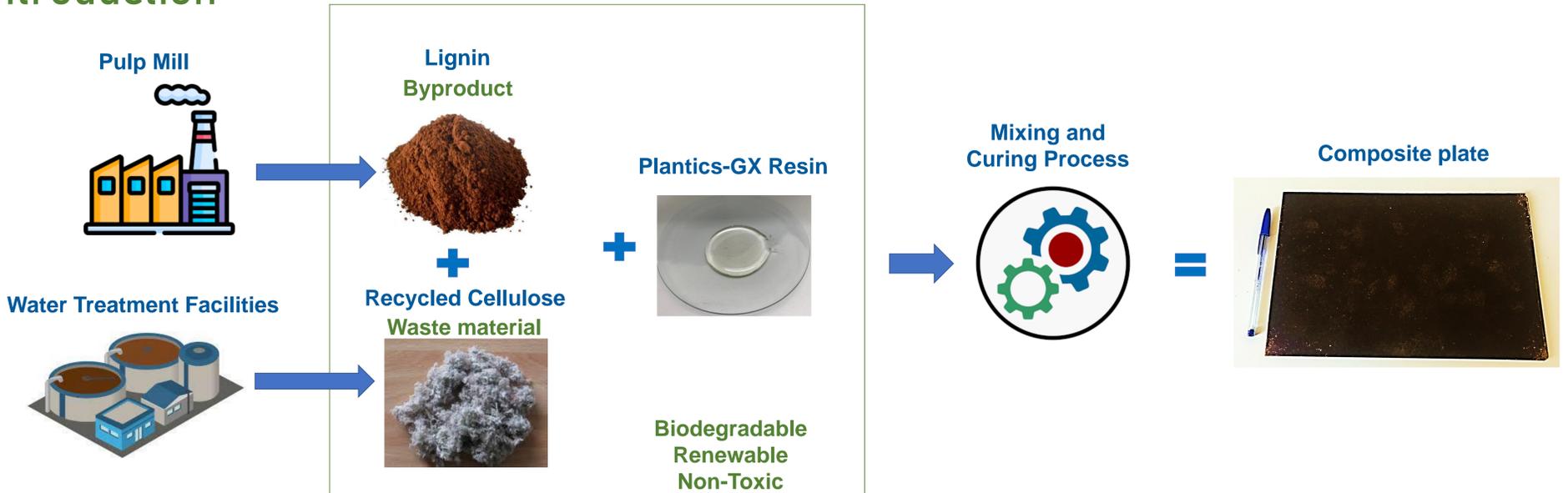


Sustainable composite material from recycled cellulose, lignin and biodegradable resin

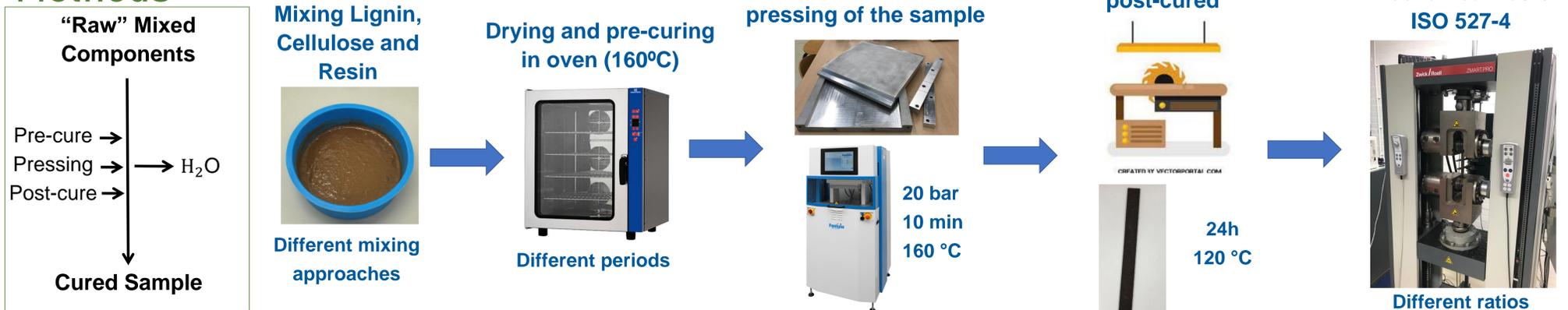
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Introduction



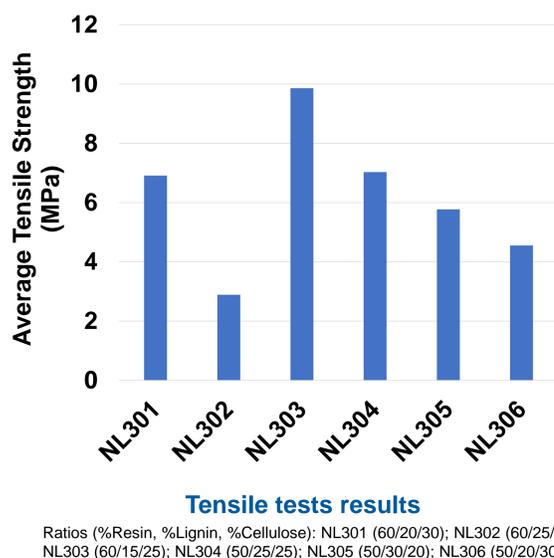
Methods



Results

Pre-cure Time (min)	Pressed plate	Post cured plate
30	Smooth and slightly sticky (not cured enough)	Bubbly and highly bended
60	Dry and firm	Slightly bubbly with minor bend
90+	Dry and brittle	Stuck to the same shape but very sandy and brittle

Pre curing tests



Conclusions

- Adding water makes it easier to mix, but increases the time to dry and pre-cure the sample;
- Pre-cure time is needed to keep the bubbles from being created during the post-cure process;
- The post-cure is needed to finish the curing reaction, switching the material from thermoplastic to thermoset;
- 1 hour pre-curing was found to be visually the best time between the ones tested;
- 6 ratios were mechanically tested, and the best one had 60% Plantics-GX, 15% Lignin and 25% Cellulose (NL 303), averaging 9,86 MPa tensile strength and 0,156% elongation at break.

References

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