

UNIVERSITAT POLITÈCNICA DE CATALUNYA ·
BARCELONATECH

BACHELOR'S DEGREE PROJECT

Fracture behaviour study of short fibre reinforced polymers

3.BUDGET

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Budget

This budget has been developed considering that a company asked for this study to be developed. It is so divided onto three main parts: *production costs* which considerate the costs associated to prepare the samples; *testing costs* for the price billed to conduct the testings and *human costs*, which account for the human work associated with analysing the samples and develop the conclusions drawn in this study.

Production costs

This part accounts for the costs associated with the sample production. Injection is billed by the hour and it accounts the amount of electricity, water and workforce needed. The same is valid for the notching technique, being in account that both broaching and femtolaser are much expensive as the samples were sent abroad as the laboratory was not equipped with the necessary instruments. A table is shown in 1 to account for all of those.

TABLE 1: Production costs

Activity	Price/h (€)	Price/u (€)	Hours (h)	Units	Price (€)
Injection	540	-	9	305	4,860
Tapping	-	1	-	103	103
Pressing	-	1	-	82	82
Broaching	-	6	-	33	198
Femtolaser	-	20	-	87	1740
Production	-	-	-	-	6,983 €

Testing costs

This section of the budget refers to all costs associated with the testing of the samples containing equipment, workforce costs and electricity. It is shown in Table 2

TABLE 2: Testing costs

Activity	Price/h (€)	Price/u (€)	Hours (h)	Units	Price (€)
Fracture 1st serie	-	240	-	33	7,920
Fracture 2nd serie	-	150	-	9	1,350
Microscopy	30	-	50	-	1,500
SEM	70	-	30	-	2,100
Sputtering	-	18	.	15	270
Subtotal	-	-	-	-	13,140 €

It is worth noting the difference made in fracture tests. A price is charged for a first serie of samples. This is: same material thickness and notching technique until a total number of samples of 10. A 2nd series price is charged for all those series in which the number of samples has been superior to 10.

Human costs

A table for the human costs is presented in Table 3. It has been calculated by estimating the number of hours dedicated to the study and considering an hourly wage.

TABLE 3: Human costs

Position	H.wage (€)	Hours (h)	Total (€)
Project manager	45	50	2,250
Senior engineer	35	50	1,750
Junior engineer 1	20	600	2,000
Junior engineer 2	20	100	12,000
Human costs	-	-	18,000 €

Budget summary

The final cost of the project is then finally obtained and presented in Table 4. A simple graphic distribution of the costs was drawn and it is shown in Figure 1

TABLE 4: Final budget

Section	Price (€)
Production costs	6,983
Testing costs	13,140
Human costs	18,000
TOTAL	38,123 €

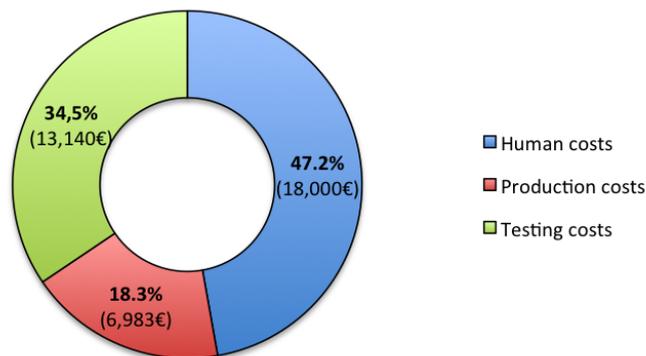


FIGURE 1: Budget costs distribution