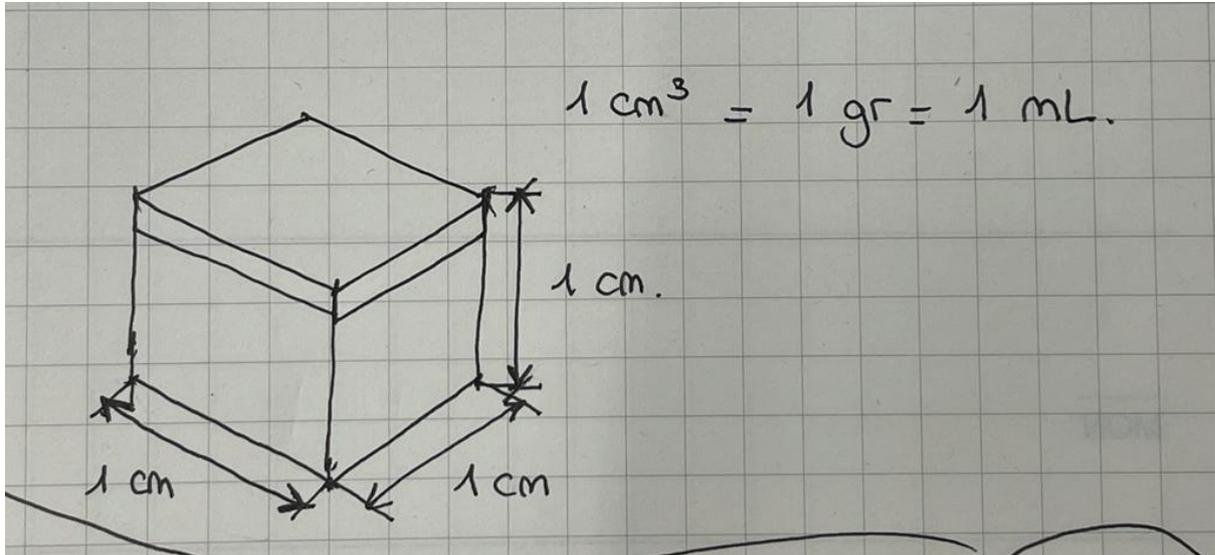


How to reportion ingredients from a biomaterial recipe

1. The first thing we have to know is: In a **1 cm x 1cm x 1cm cube**, we have a 1cm^3 , which is equal to **1 gr**, and is equal too to **1 mL**.



2. Knowing this, we have a basic recipe with gr and L. We can **transfer the liters to ml**, and once we have everything in grams and millimeters, we add everything equally.

In this case we have a recipe of **5742 gr or ml** (as we want to consider it) and this is **100%** of the initial recipe.

Knowing that 5742 gr is 100% of the recipe, we are going to **calculate (with a simple rule of 3) the percentages of each ingredient** has in the recipe. (The more decimal numbers we write down, the more precise the recipe will be).

<table border="0" style="width: 100%;"> <tr> <td style="width: 10%;">—</td> <td style="width: 40%;">20 GR WOOL FIBER.</td> <td style="width: 10%; text-align: right;">20</td> <td style="width: 30%;"></td> </tr> <tr> <td>—</td> <td>5 L WATER =></td> <td style="text-align: right;">5000</td> <td></td> </tr> <tr> <td>—</td> <td>120 GR ORANGE PEEL</td> <td style="text-align: right;">120</td> <td></td> </tr> <tr> <td></td> <td>CALCIUM CHLORIDE. +</td> <td></td> <td></td> </tr> <tr> <td>—</td> <td>125 GR SODIUM ALGINATE</td> <td style="text-align: right;">125</td> <td></td> </tr> <tr> <td>—</td> <td>421 GR GLYCERIN</td> <td style="text-align: right;">421</td> <td></td> </tr> <tr> <td>—</td> <td>56 GR COCONUT OIL.</td> <td style="text-align: right;">56</td> <td></td> </tr> <tr> <td colspan="2"></td> <td style="border-top: 1px solid black; text-align: right;">5742 GR.</td> <td></td> </tr> </table>	—	20 GR WOOL FIBER.	20		—	5 L WATER =>	5000		—	120 GR ORANGE PEEL	120			CALCIUM CHLORIDE. +			—	125 GR SODIUM ALGINATE	125		—	421 GR GLYCERIN	421		—	56 GR COCONUT OIL.	56				5742 GR.		<div style="border: 1px solid black; border-radius: 15px; padding: 10px; width: fit-content;"> <table border="0" style="width: 100%; color: red;"> <tr><td style="text-align: right;">0'3413 %</td></tr> <tr><td style="text-align: right;">87'07 %</td></tr> <tr><td style="text-align: right;">2'089 %</td></tr> <tr><td style="text-align: right;">2'176 %</td></tr> <tr><td style="text-align: right;">7'35 %</td></tr> <tr><td style="text-align: right;">0'975 %</td></tr> <tr><td style="text-align: right;">100 %</td></tr> </table> </div>	0'3413 %	87'07 %	2'089 %	2'176 %	7'35 %	0'975 %	100 %
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3. To get an idea of what this recipe is in measurements, I have considered (hypothetically) that this bioleather is 1 cm thick, by 1 m (100 cm) long, but I don't know how wide the bioplastic is.

So, I consider the equation, where the unknown is the width. And when clearing it, I see that this bioplastic for a 1 cm thickness has to be 1 m long by 57.42 cm wide.

$5742 \text{ GR} = 5742 \text{ CH}^3$

THICKNESS WIDTH LONG.

EJ: $5742 = 1 \text{ CH} \cdot 100 \text{ CH} \cdot X \Rightarrow$

$\Rightarrow \frac{5742 \text{ CH}^3}{100 \text{ CH}^2} = X \Rightarrow 57'42 \text{ CH. LONG.}$

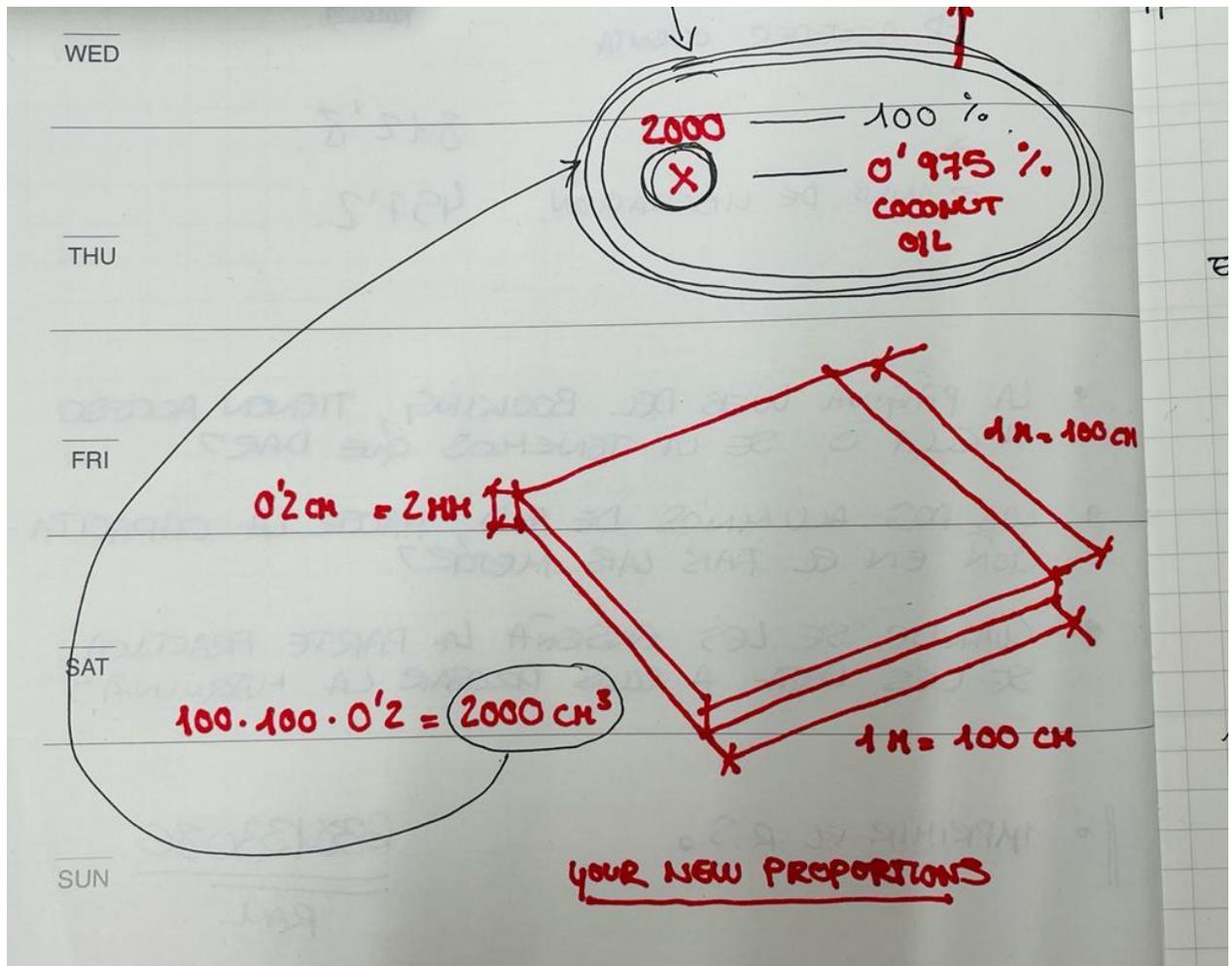
$100 \text{ CH} = 1 \text{ M.}$

$0'5742 \text{ M} = 57'42 \text{ CH.}$

$0'01 \text{ M} = 1 \text{ CH}$

STANDARD PROPORTIONS

4. So, in the event that you want to make a bioplastic mold with (an example) measure of 2 mm (0.2 cm), by 1 m wide (100 cm) by 1 m long (100 cm). You need a bioplastic mix of 2000 gr or ml or cm³.



5. Knowing that the 2000 gr, ml or cm³ is going to be 100% of your mix. Now, as you know what the percentages of each ingredient are, you have to **make a rule of three** for each of the ingredients using the percentages.

NEW PROPORTIONS

←	20 GR	WOOL FIBER.	20	0'3413 %
←	5 L	WATER =>	5000	27'07 %
←	120 GR	ORANGE PEEL	120	2'089 %
		CALCIUM CHLORIDE. +		
←	125 GR	SODIUM ALGINATE	125	2'176 %
←	421 GR	GLYCERIN	421	7'33 %
←	56 GR	COCONUT OIL.	56	0'975 %
			5742 GR.	100 %

$$\frac{5742}{56} = \frac{100}{X}$$

$$X = \frac{56 \times 100}{5742} = 0'975 \%$$

2000 — 100 %
 X — 0'975 %
 COCONUT OIL

That's it! ^^