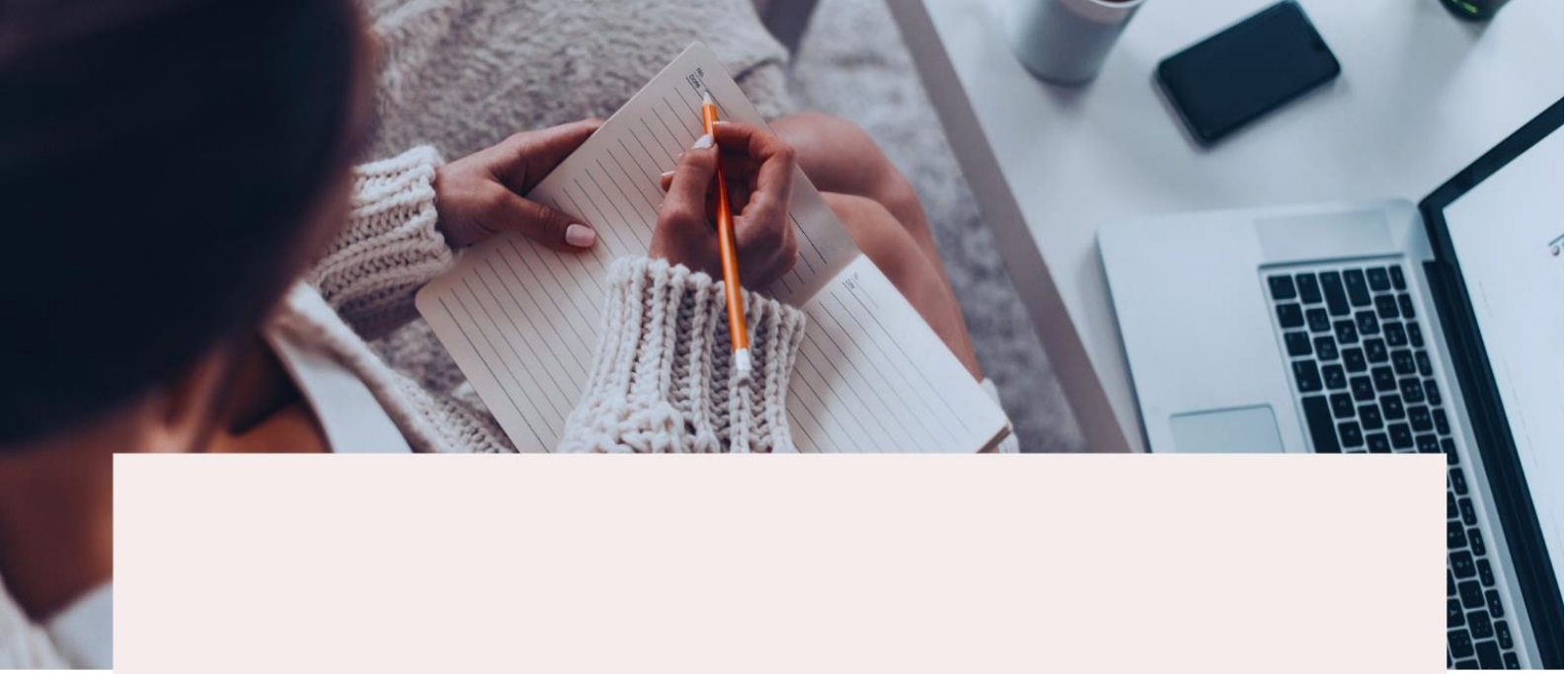

TEXTBOOK

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Cosmetic Formulas

How to write cosmetic formulas the right way

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HOW TO WRITE A COSMETIC FORMULA

To be able to make beautiful, stable and effective products and recreate the same results every time, you have to be able to write a PROPER cosmetic formula. If you have never formulated cosmetic products before, I suggest you begin with the introductory videos on how cosmetic formulas are written. In this lecture, we would fine-tune what you should already know.

COSMETIC FORMULAS ARE WRITTEN IN PERCENTAGES

Cosmetic formulas are written in percentages – not in batch sizes or volume units such as spoons, drop or cups. They are written in 100% which makes it very easy to convert to different batch sizes and still get the exact same product. 100% represents the completeness of a formula – your formula should not be below or beneath this number even by a margin.

UP TO 100%

PHASE	INGREDIENT	w/w%
A	Water	Up to 100
A	Lavender Hydrosol	20

Usually, the largest ingredients are the first ingredient names. It could also be called the solvent. The solvent is the continuous phase in which every other ingredient is contained. You can expect to read formulas where the percentage of the solvent is written as **“up to 100%”.** This simply means that you are to subtract the other ingredients values from 100 to get the exact solvent value. The solvent is very flexible, so if you decide to remove an ingredient, you can simply take away the ingredient and add its value to the solvent. In the same way, if you want to add an ingredient, you can simply add the ingredient and subtract the value from the solvent.

In the example below, 5% Glycerin is added and the 5% is subtracted from the initial 80%. Water becomes 75%

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PHASE	INGREDIENT	w/w%
A	Water	75
A	Lavender Hydrosol	20
A	Vegetable Glycerin	5

PHASES

Ingredients are written in phases because raw material categories have different mixing needs – such as solubility and heat sensitivity. Therefore, ingredients that a compatible with specific processing needs are grouped. When formulating cosmetics, the formulating method is crucial.

INGREDIENTS

Raw materials are to be written in trade names where possible, otherwise, the INCI name is acceptable with the name of the supplier added. Trades names are unique to manufacturers – therefore the concentration and manufacturing process is standardized. That way you can source the same product to get the same results. INCI names do not tell the whole story but it is acceptable if you also include the name of the supplier for consistency. Suppliers usually have different sources and therefore, their raw materials may differ or be the same.

C	**Coconut Oil**	**10**
C	Olivem 1000 (Cetearyl Olivate, Sorbitan Olivate)	5

WEIGHT BY WEIGHT (W/W)

Ingredients are measures in weight only, not in volume – ml, cups, etc. Weight measurements (for example, grams - g) are the reliable way of ensuring batch to batch consistency. When you have written your formulas in percentages, it is easier to just convert the formula to grams by changing the percentage sign to g.

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PHASE	INGREDIENT	w/w%
A	Water	75g
A	Lavender Hydrosol	20g
A	Vegetable Glycerin	5g

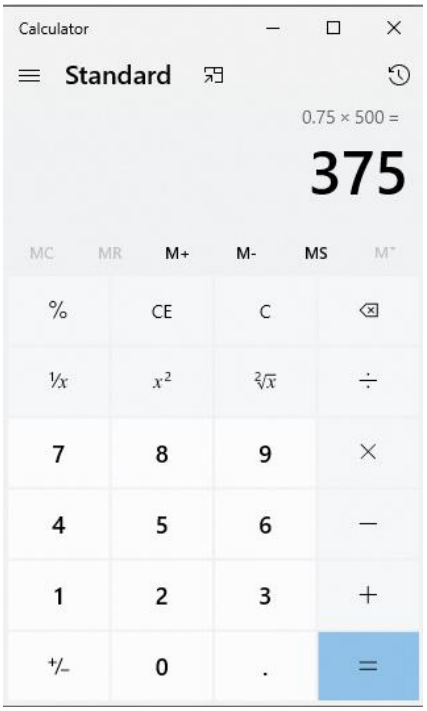
SCALING TO BATCH SIZE

Again, it is easy to scale up your batch or scale down when your formula is written in percentages. Simply multiply the percentage value by your batch size. For instance, let's scale the formula above to a 500g batch size.

PHASE	INGREDIENT	w/w%
A	Water	75
A	Lavender Hydrosol	20
A	Vegetable Glycerin	5

Water: **75% x 500: 375**
Lavender Hydrosol: **20% x 500: 100**
Vegetbale Glycerin: **5% x 500: 25**





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When using a calculator – make sure you hit the percentage sign.

PHASE	INGREDIENT	w/w%	BATCH – 500g
A	Water	75%	375g
A	Lavender Hydrosol	20%	100g
A	Vegetable Glycerin	5%	25g
		TOTAL	**500g**

We can repeat the same process again with for a 30g batch size.

Water: **75% x 30: 22.5**
Lavender Hydrosol **20% x 30: 6**
Vegetable Glycerin **5% x 30: 1.5**

PHASE	INGREDIENT	w/w%	BATCH – 30g
A	Water	75	22.5g
A	Lavender Hydrosol	20	6g
A	Vegetable Glycerin	5	1.5g
		TOTAL	**30g**

QUANTUM SUFFICIT (q.s.)

q.s. or quantum sufficit is a Latin term that means “as much as is needed”. When you see q.s. in a formula, it means you should as much of the raw material as is needed to achieve the desired purpose. In the case of pH, as is often the case, a value is specified. After a formula’s pH is tested, it is then adjusted with an acidic buffer or a basic buffer to get the desired pH.

METHOD

When you study with us, we introduce you to various formulating principles and methods relative to whatever course your taking. But we will emphasize a basic and all essential principle about writing methods.

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HOW TO WRITE A COSMETIC FORMULA

1. Your formulation method must be broken down into steps – not a paragraph
2. Each step must come to a clear and conclusive end.

That means you can't afford to be vague here. You must be as clear as possible so that it is easy for someone else to understand and replicate the same results. You cannot say "blend for 5 minutes ", this will not apply to different batch sizes. And you can't say "mix" on its own without being clear on when they are to stop mixing. See the sample formula below and read it to understand.

COCONUT MOISTURIZER- FORMULA

PHASE	INGREDIENT	w/w%
	HEATED-WATER PHASE	
A	Water	To 100%
A	Lavender Hydrosol	20
B	Vegetable Glyecrin	5
B	Xanthan Gum	0.2
	HEATED-LIPID PHASE	
C	Coconut Oil	10
C	Olivem 1000 (Cetearyl Olivate, Sorbitan Olivate)	5
	COOLDOWN PHASE	
D	D-Panthenol (75%)	0.5
D	Tocopherol (75%)	0.5
D	Lavender Essential Oil	0.5
E	Euxyl PE9010 (Phenpxyethanol and Hexyglycerin)	1
F	Adjust pH to 5.5	q.s.
	TOTAL	

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METHOD

1. Add all ingredients in Phase A into a heatproof container.
2. In phase B, add Xanthan gum to the vegetable glycerin, and mix until completely homogenous without any lumps. Add Phase B to phase A while mixing and heat to 75°C.
3. Combine all ingredients in phase C in a heat-proof container and heat to 75°C.
4. At 75°C, add phase C to phase A+B and mix well until a glossy, homogenous emulsion forms.
5. Place phase A+B+C into a cool bath to speed up cooling and continue stirring until the temperature reduces to 40°C
6. At 40°C, add all ingredients in phase D into phase A+B+C and mix well until homogenous.
7. Add phase E to phase A+B+C+D, and stir well until properly mixed and homogenous.
8. Adjust pH to 5.5 if required.

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HOW TO WRITE A COSMETIC FORMULA

SAMPLE FORMULATION SHEET

PHASE	INGREDIENT	W/W%	BATCH
	TOTAL		

METHODS

1.
2.
3.
4.
5.

CHECKS

PH – Preservatives, actives, etc **COMPATIBILITIES –** Ionicity, etc

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