Aloe Vera Calculations made easy ...

RAHN

One question we get asked **frequently** is how to **calculate Aloe Vera Content** in a formulation. How much do I need to use in order to have a **certain amount** within my formulation?

We have to differentiate two types of Aloe Vera products:

1. Aloe Vera Gels and its concentrates
2. Aloe Vera Extracts

Difference between juice and extract

Aloe Barbadensis Gel is a plant juice (and not an extract) and consists of **water** and a **proportion of solids**. The natural proportion of aloe vera solids in Aloe Vera Gel is approx. 0.5 %, the rest is water.

Concentration of the Aloe Vera gel is achieved by proportionally **removing** some or all of the water. This produces concentrates (10x, 40x, 200x) that result in pure Aloe Vera gel (1x) when re-diluted correctly with water.

In the INCI declaration the term ‘Aloe Barbadensis Leaf Juice’ makes it clear that the name ‘Gel’ **refers** to the proportion of aloe vera juice.

Difference between juice and extract

An extract is gained using a **solvent** and a certain proportion is thus extracted from the plant. When talking about **extracts** we therefore **differentiate** between the **proportion** of **solvent** and the **proportion** of **extract** (dry residue).

For Aloe Vera Oil Extract AO002, for example, it is soy oil that **extracts** the **oil-soluble proportion** from the Aloe Vera Gel.

The INCI name is therefore Aloe Barbadensis Leaf Extract. In this case the INCI declaration must include the **solvent** and the **extracted proportion**.

Understanding Aloe Vera Gel concentrations

Let's use **Aloe Vera Powder TN001** as an example. Aloe Vera Powder TN001 is **200 times** more concentrated, meaning water has been **completely removed** from the Aloe Vera Gel to make it more **concentrated** with Aloe Vera solid content.

For Aloe Vera Powder TN001 it means it has **200 times** the **amount** of Aloe Vera **solids** than **pure / original** Aloe Vera Gel.

When we use Aloe Vera products, we need to consider the **concentration** of the product, the **percentage** we want and how much **water** we need to re-add to our formulation.

Calculations for Aloe Vera Powder TN001

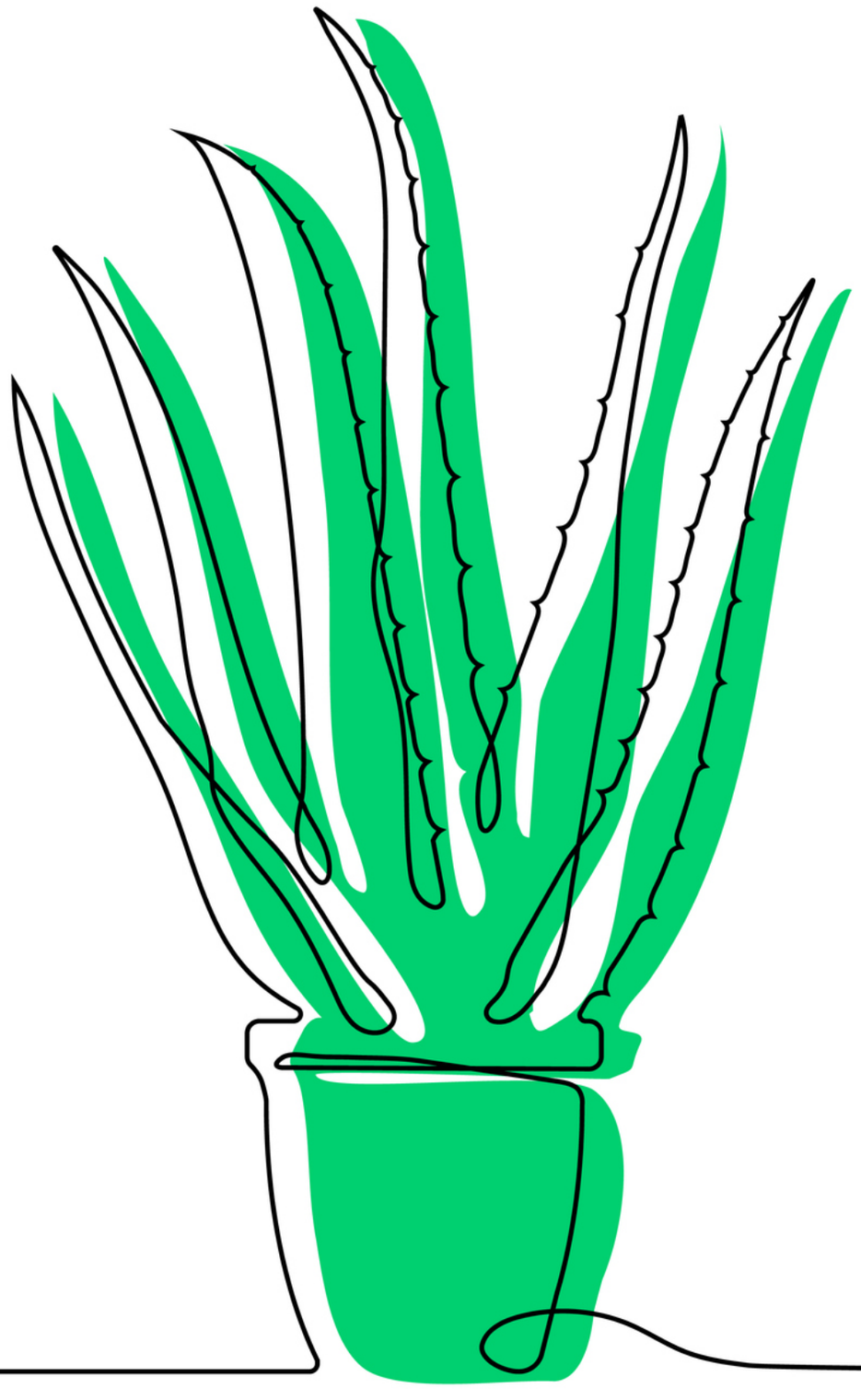
Example:

In my formulation, I want to have **20% Aloe Vera Gel**. How much Aloe Vera Powder TN001 do I need to use?

Firstly, you want to use this equation:

Percentage you want to have ÷ Concentration of Product =

How much product you need to use



20 % ÷ 200X = 0.1 %

As stated before, Aloe Vera Powder TN001 is **200 times more concentrated** than pure Aloe Vera Gel. This is achieved by removing water. To be able to have 20 % Aloe Vera Gel we need to work out **how much water was removed** and **re-add** this water to the Aloe Vera Powder TN001.

Calculations for Aloe Vera Powder TN001

Example:

I need to add 0.1 % Aloe Vera Powder TN001 to my formulation to be able to have **20 % Aloe Vera Gel**. How much **water** do I need to **add** to the 0.1 % Aloe Vera Powder TN001?

You want to use this equation:

Percentage of Aloe Vera you want to have – Percentage of product you need to use = Amount of water you need to re-add

20 % – 0.1 % = 19.9 %

So, in this case, add 19.9 % **on top** of whatever water you had in your formulation.