HELP DOCUMENTATION

Welcome to Flame Solver, an application for analysing and simulating combustion. Here you will find a complete guide on how to use the application efficiently.

The Flame Solver interface is organised into several tabs, each with a specific function. Navigation between the tabs is simple and intuitive and allows you to configure and visualise different aspects of combustion analysis. The main tabs are:

1. Fuel: For selecting and configuring fuels and their volumetric percentages.
2. Air: To set the air properties, including excess air and humidity.
3. Combustion Analysis: To visualise the combustion products and how they vary with excess air.
4. Flame Temperature: To calculate and visualise the flame temperature of the combustion products.
5. Ostwald Triangle: To generate the Ostwald Triangle, based on the measurements of a CO, O_2 and temperature probe.

HOW TO USE DE APP

Step 1: Select the fuels

Start in the Fuel tab, where you can choose up to 6 fuels. Adjust the volumetric percentages for each fuel, ensuring that the total sum is 100%.

Step 2: Configure excess air and air properties

In the Air tab, set the excess air value and (or not) air humidity. Enter the temperature and atmospheric pressure values.

Step 3: Analyse the combustion products

The Combustion Analysis calculates the combustion products and illustrates how they are affected by excess air. The graph will update automatically as you adjust the parameters.

Step 4: Calculate the flame temperature/ Combustion products temperature

In the Flame Temperature tab, enter the data required to calculate the flame temperature of the combustion products, such as Q_{in}, W_{in}, Q_{out} and W_{out}. The temperature graph will also be displayed on this tab.

Step 5: Visualise the Ostwald triangle

The Ostwald triangle will be drawn, helping to analyse the combustion process after the probe provides data through Probe Dashboard.

The *Flame Solver* team.