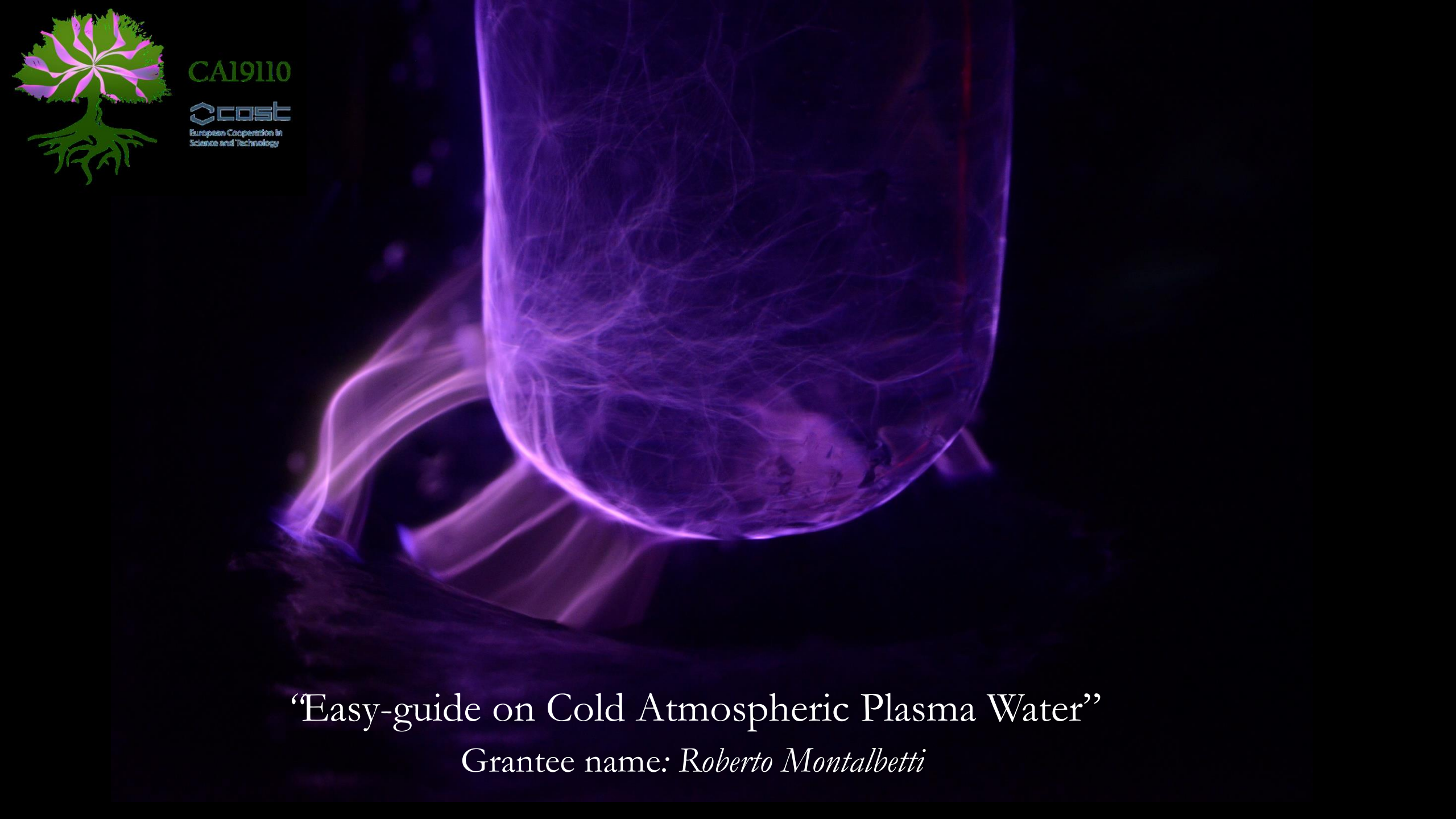
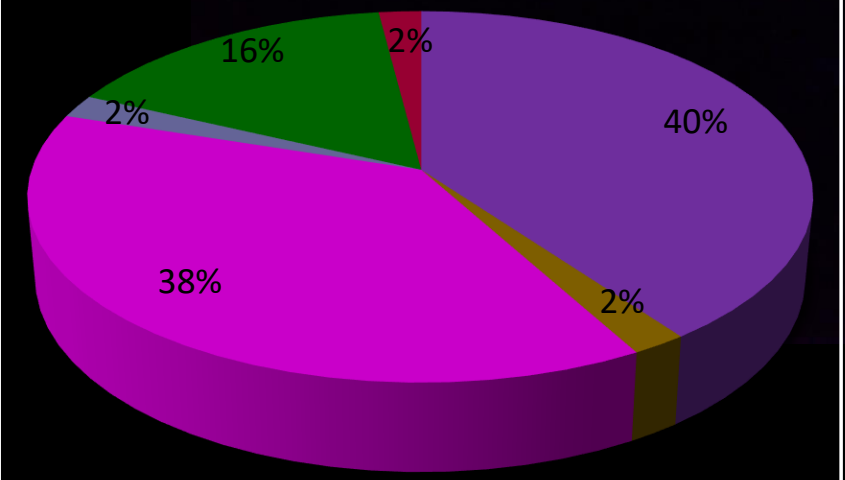


"Easy-guide on Cold Atmospheric Plasma Water"

Grantee name: *Roberto Montalbetti*

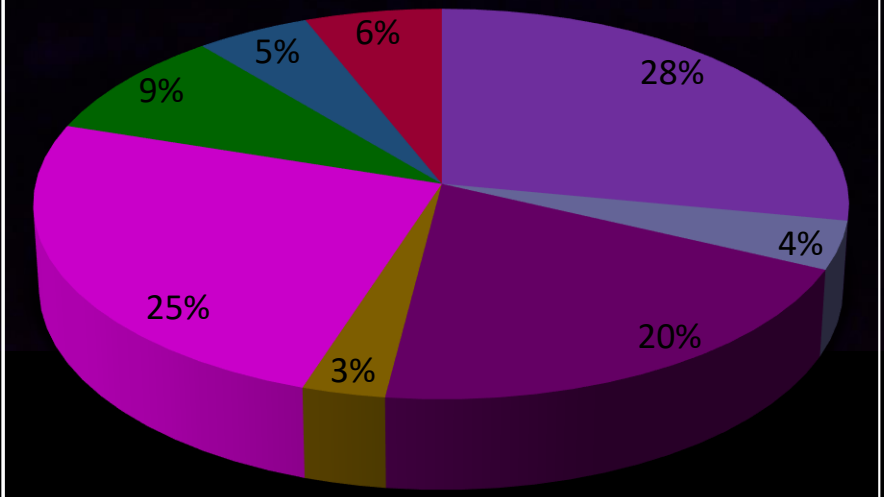
These 3 graphs shows the most used water, carrier gas and CAP source type within the scientific literature.

Water type



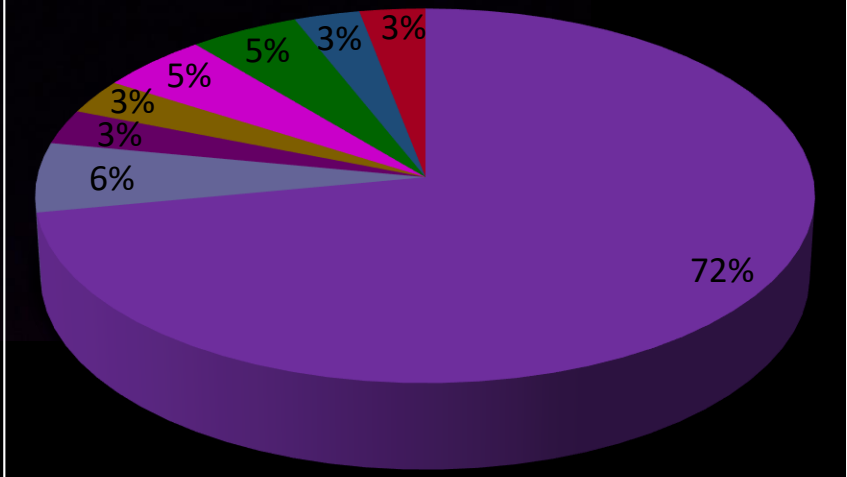
- Deionized water
- Demineralized water
- Distilled water
- Reverse Osmosis Water
- Tap water
- Others

Source type



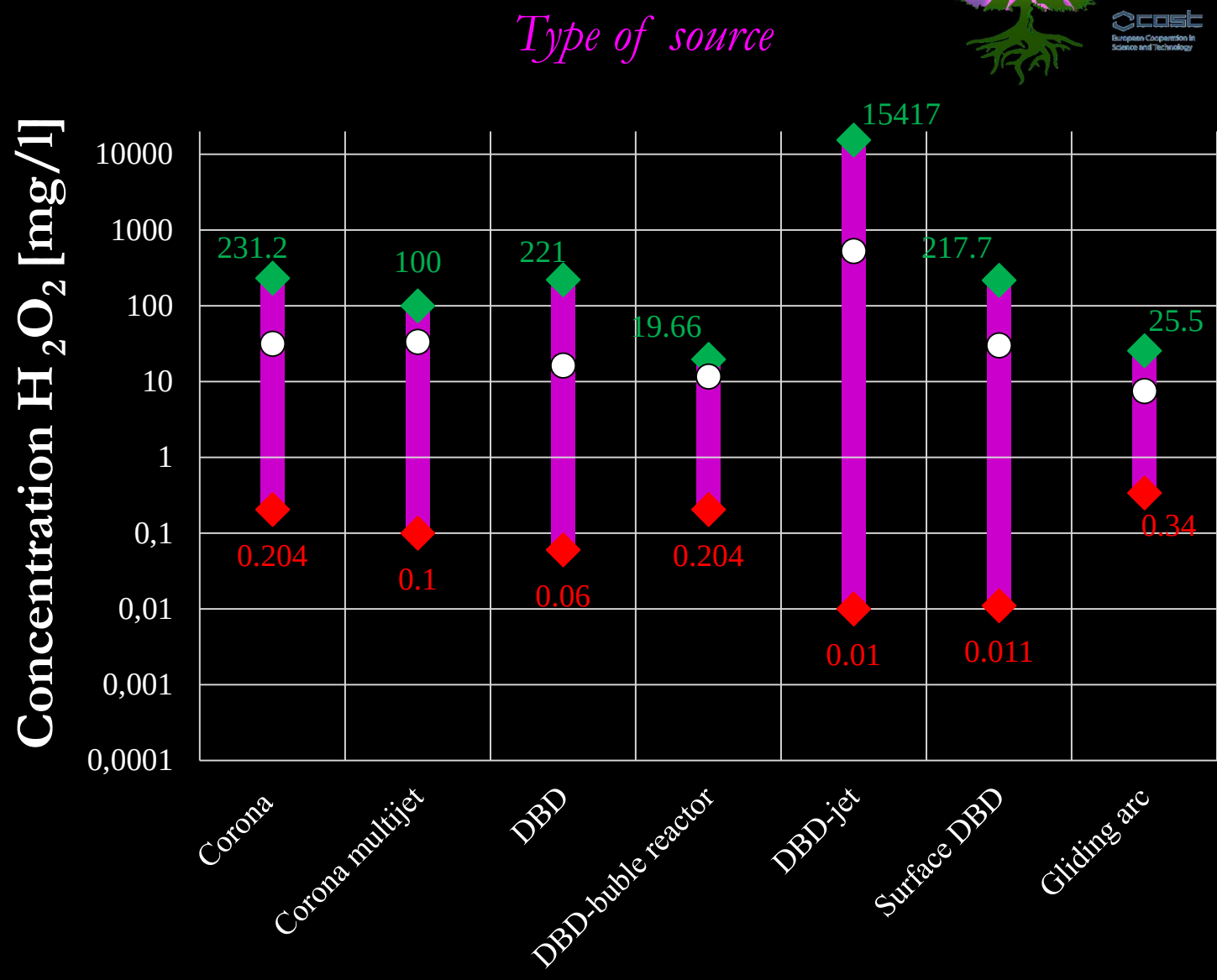
- Corona
- Corona Multijet
- DBD
- DBD-Bubble reactor
- DBD-JET
- Surface DBD
- Gliding Arc
- Others

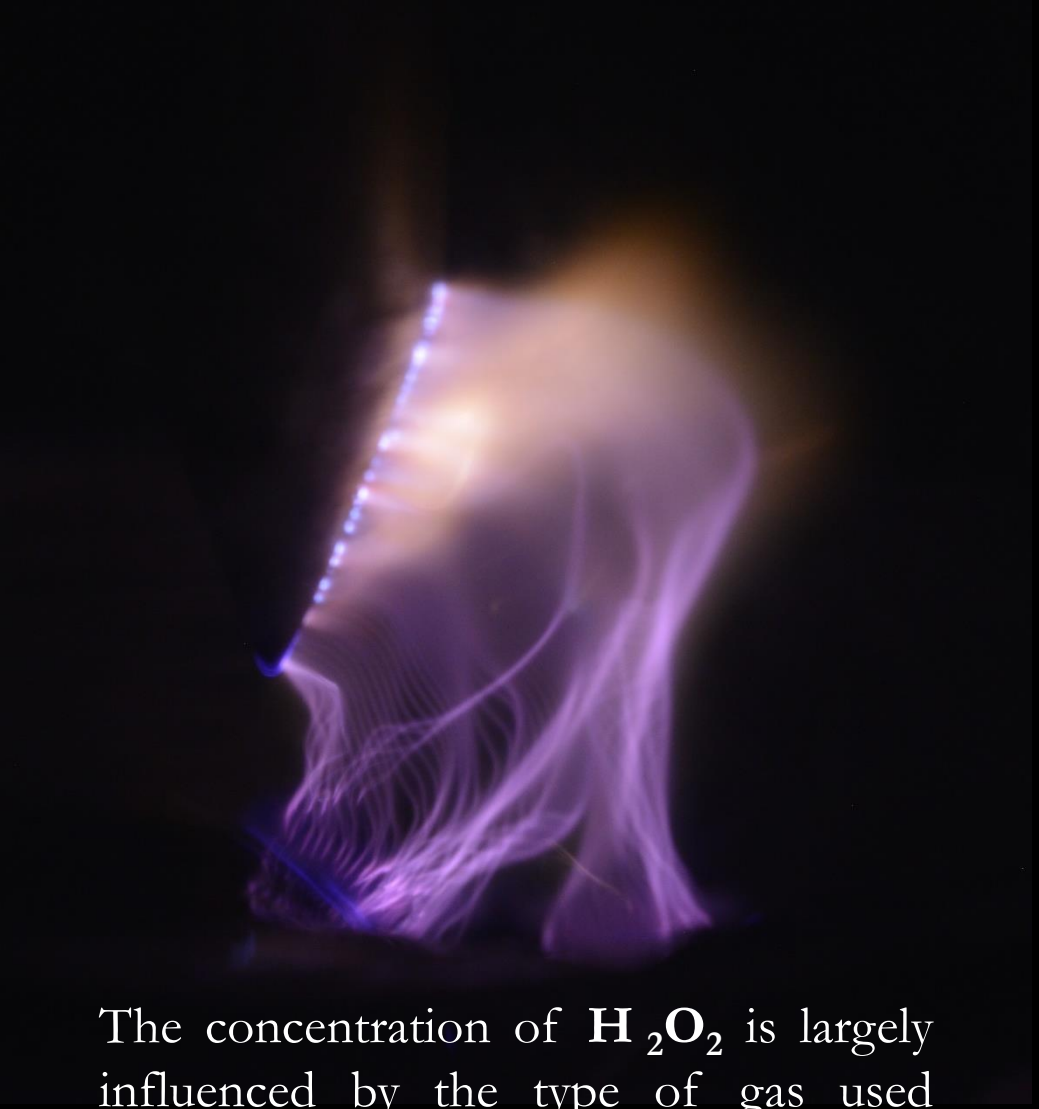
Carrier gas type



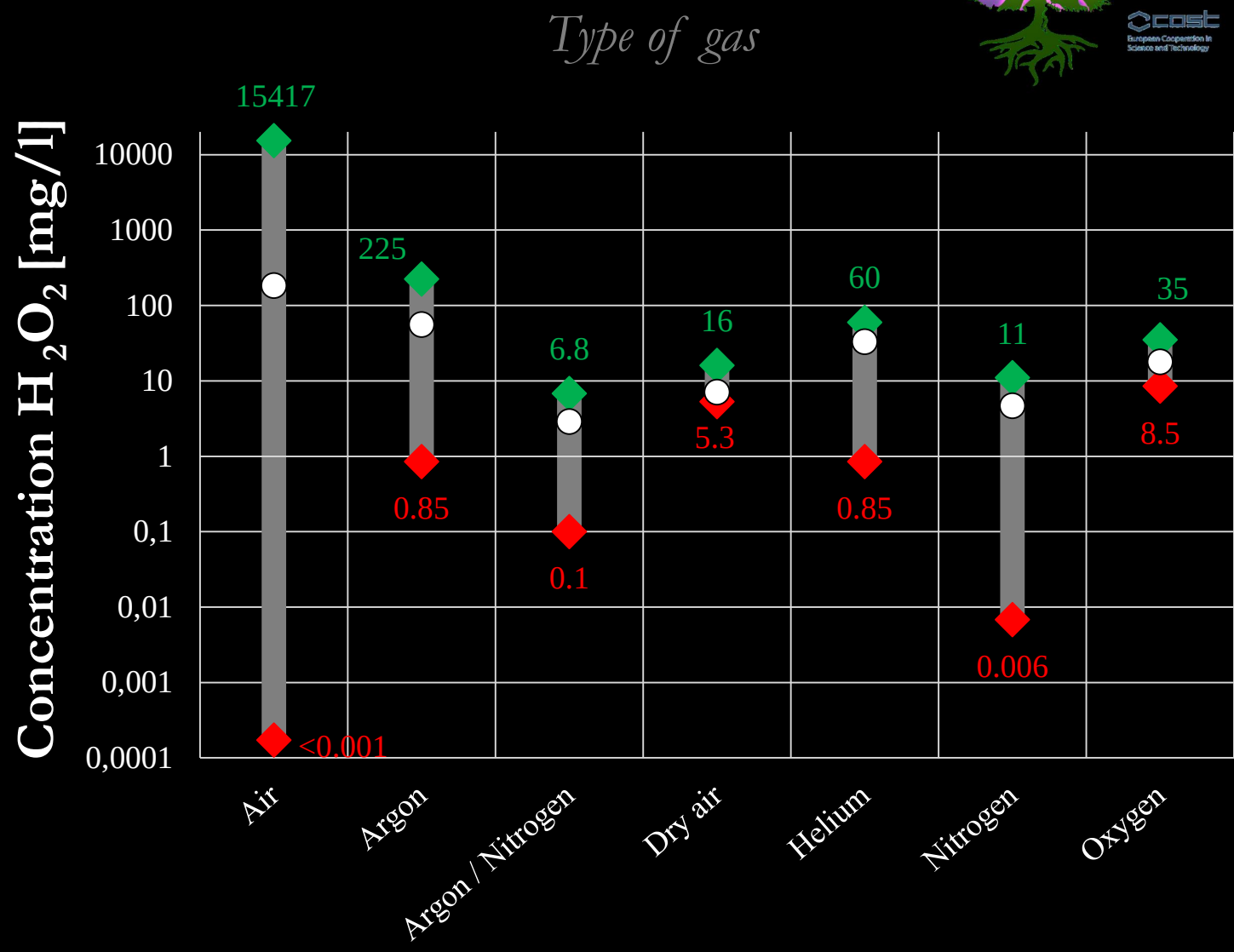
- AIR
- Argon
- Argon/Nitrogen
- DRY AIR
- Helium
- Nitrogen
- Oxygen
- Others

The concentration of H_2O_2 is a parameter to evaluating the efficiency of PAW treatments. The graph shows how H_2O_2 production is maximized by using **Dielectric Barrier Discharge-jet** devices.



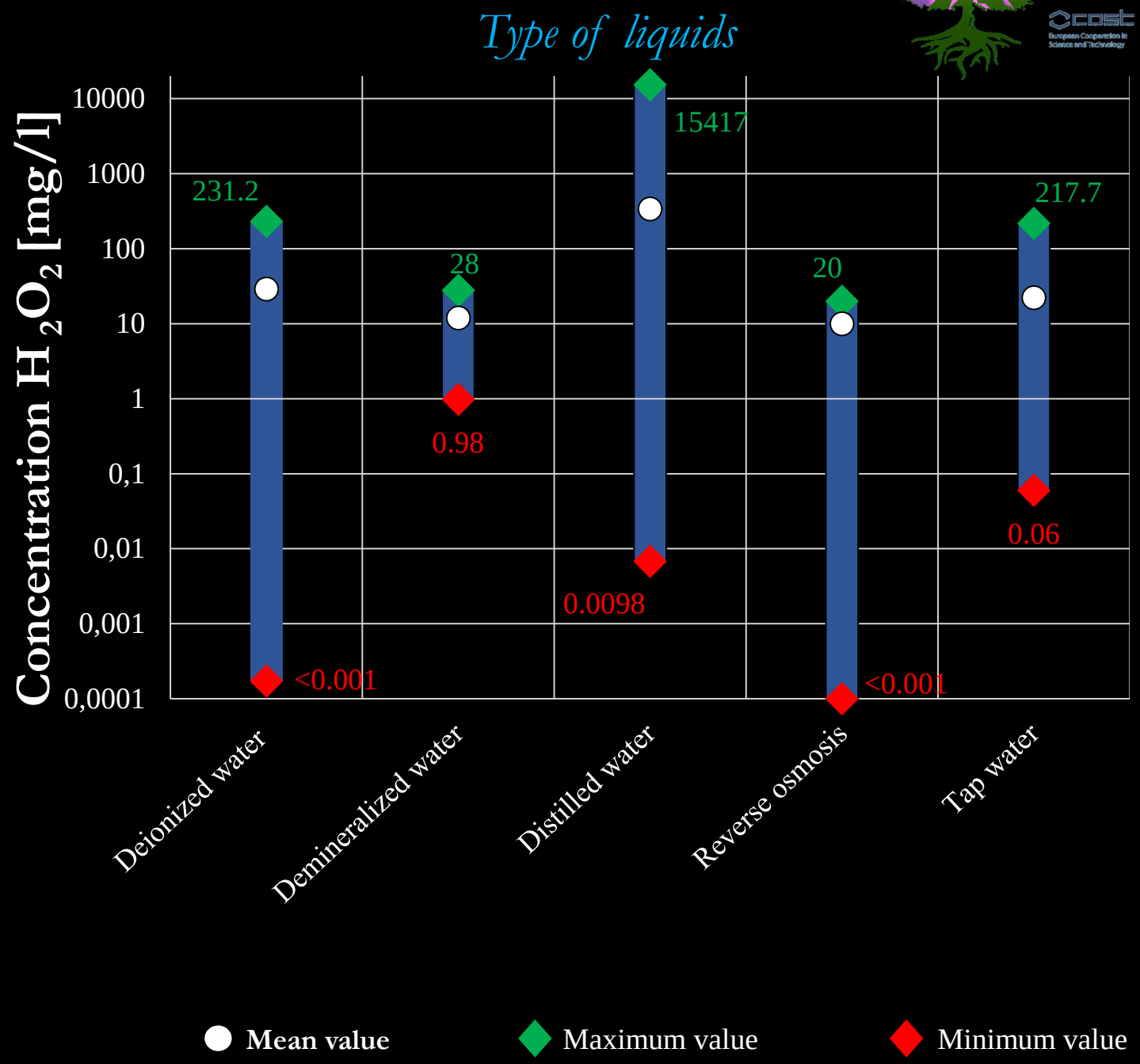


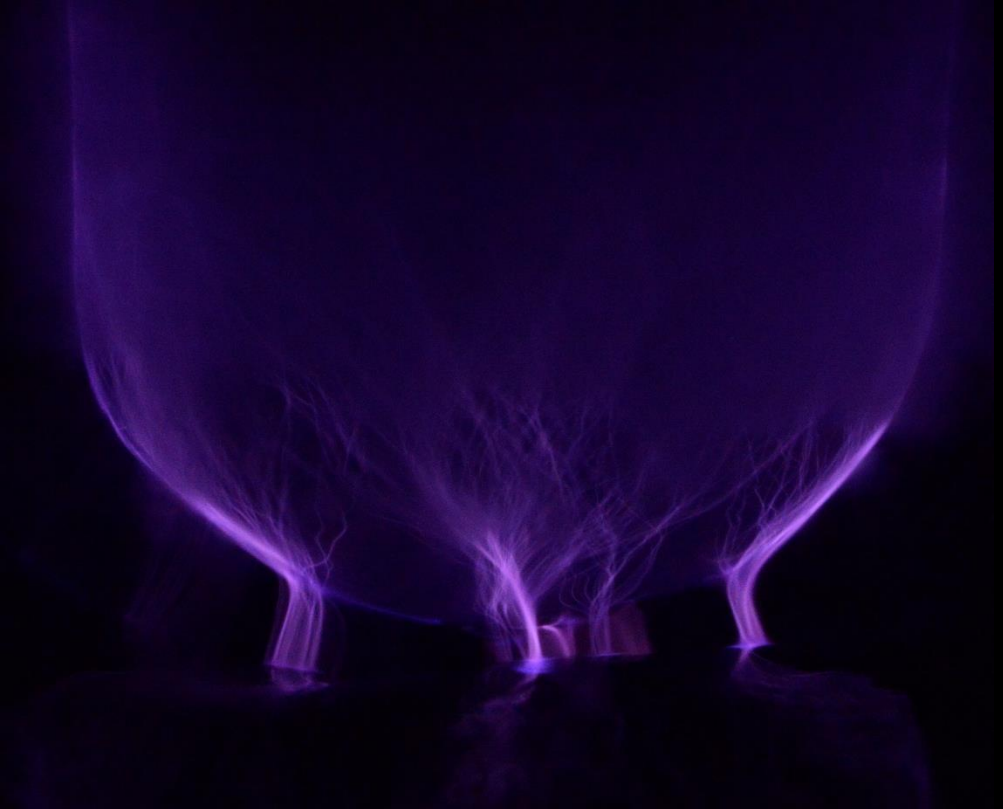
The concentration of H_2O_2 is largely influenced by the type of gas used during the treatment. The graph shows that using **air** as the process gas maximizes H_2O_2 production compared to pure Helium or Argon.



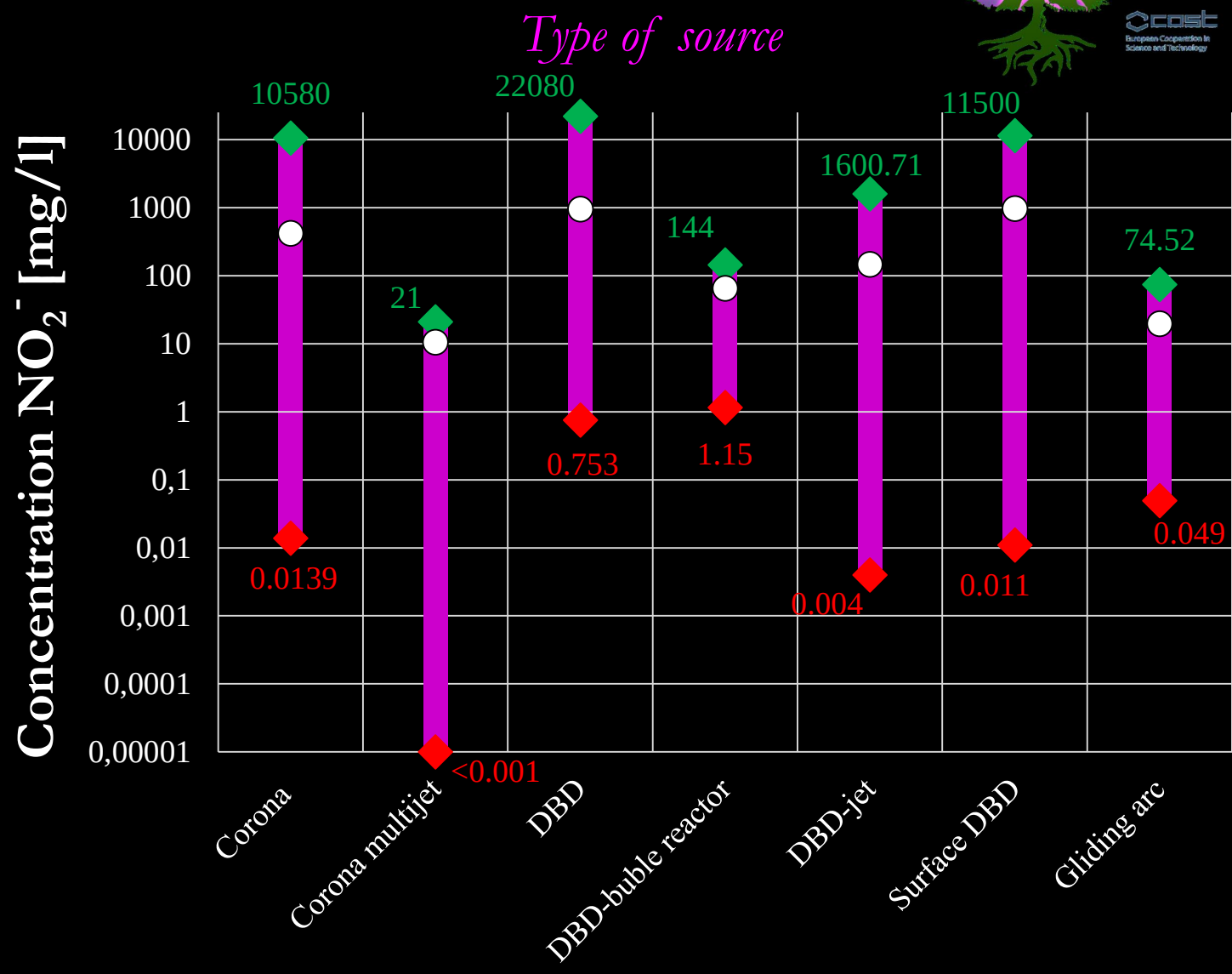
Mean value Maximum value Minimum value

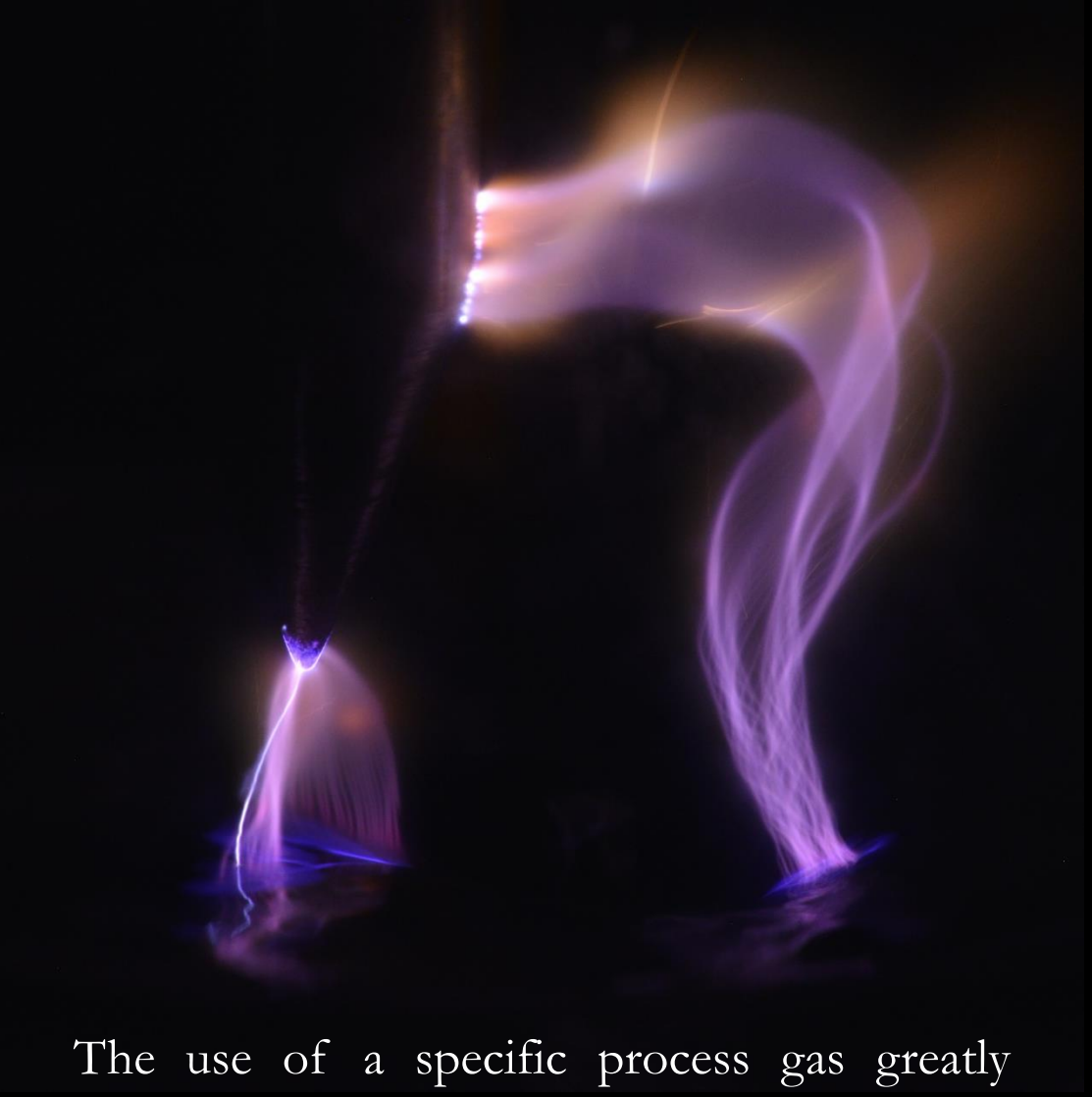
The concentration of H_2O_2 depends strongly on the type of water used. The use of **distilled water** increases the concentration of dissolved H_2O_2 in water.



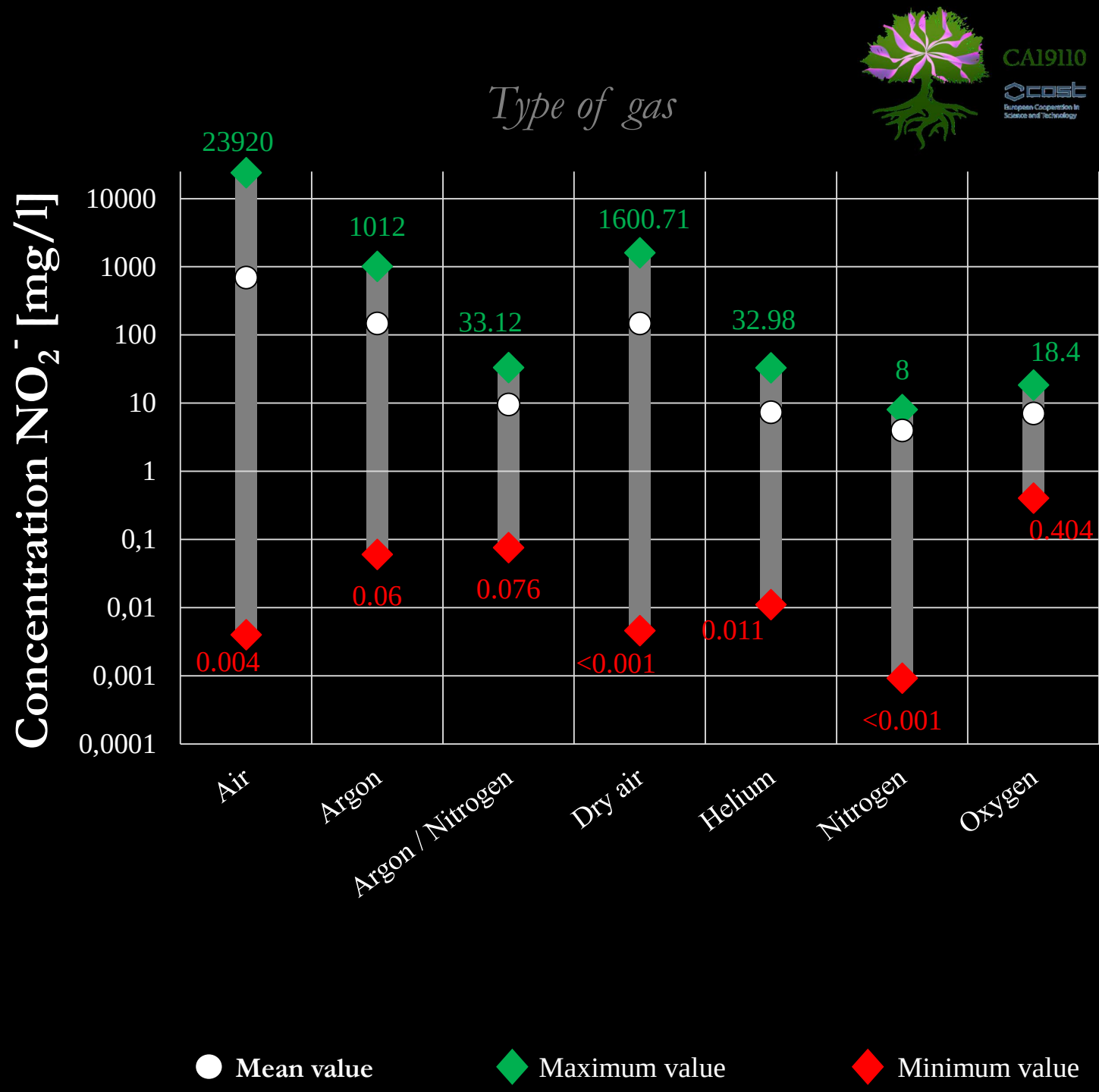


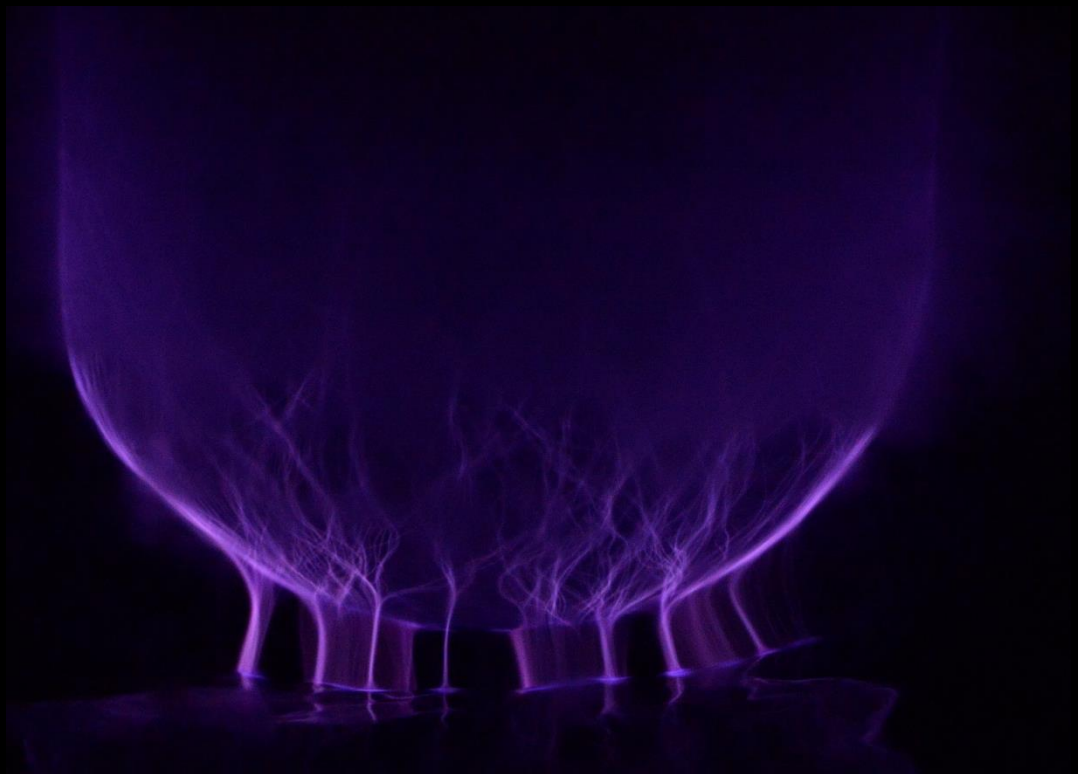
The concentration of dissolved NO_2^- in water is highly variable depending on the device used for treatment. The graph shows that a **DBD** device is preferred to maximize the concentration of NO_2^- in water.



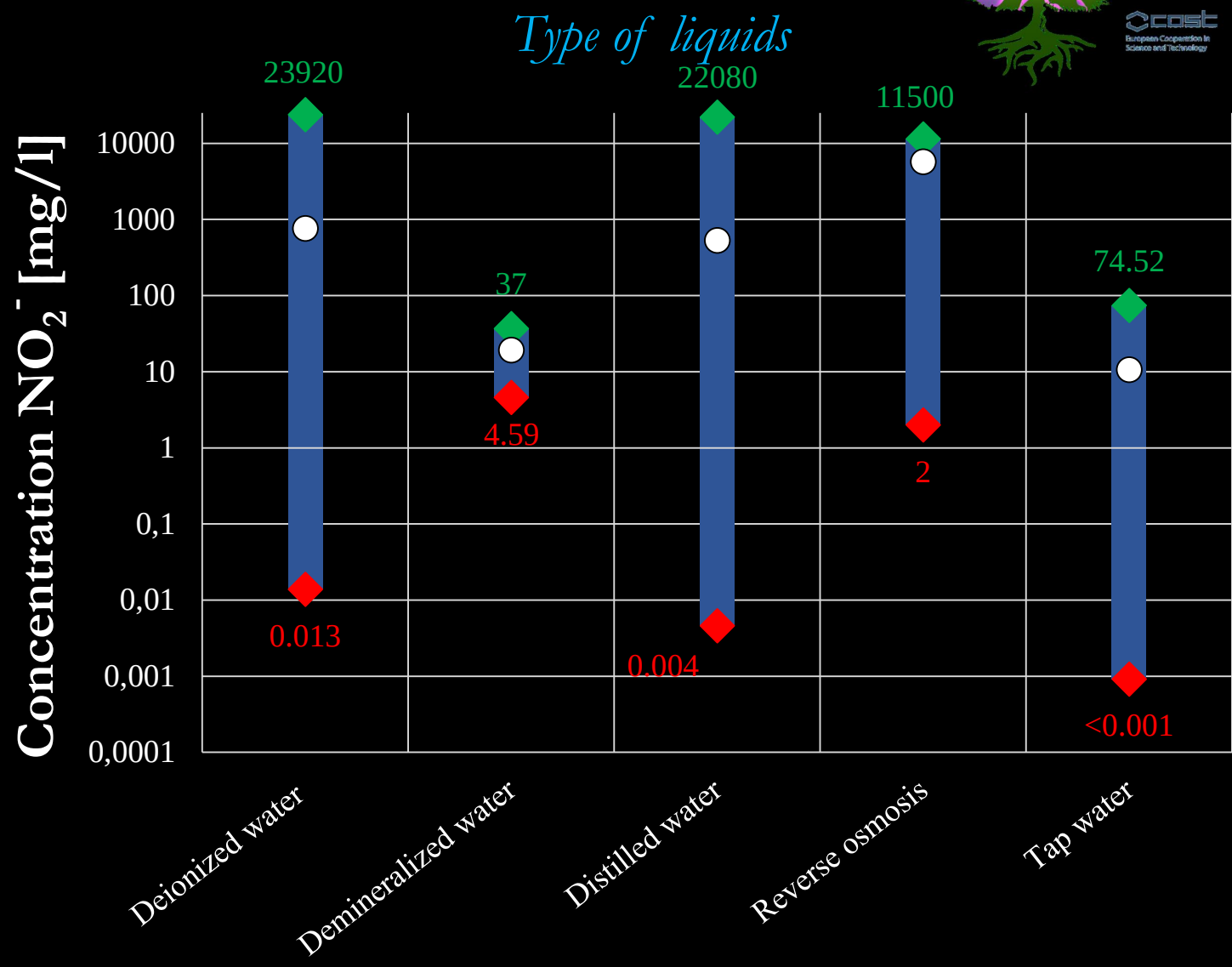


The use of a specific process gas greatly influences the concentration of NO_2^- dissolved in water. The graph shows that the use of **air** as process gas maximizes the contraction of NO_2^- in water.



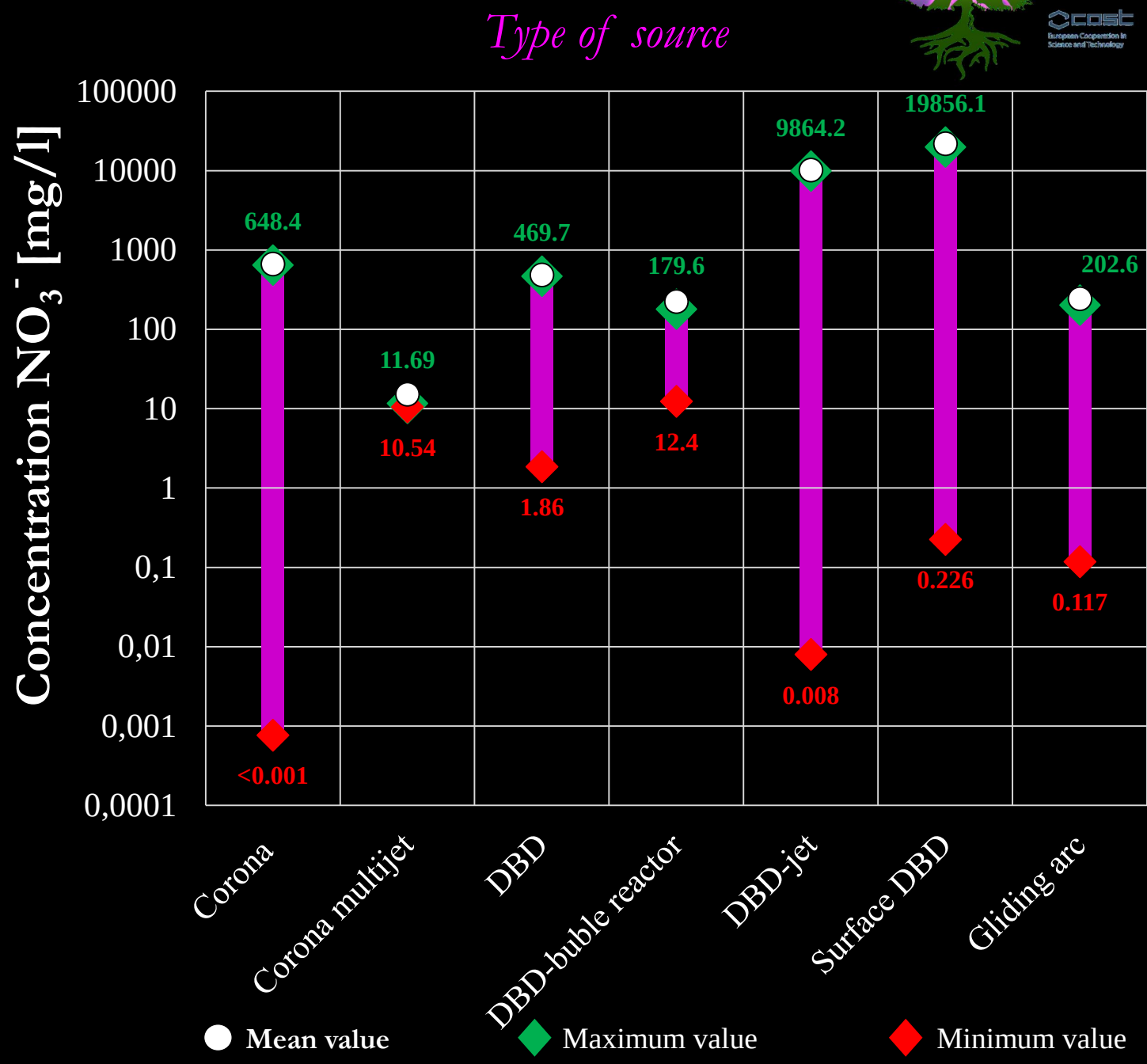


The type of water used in treatment affects the concentration of NO_2^- in water just like the choice of process gas and cold plasma device. The graph shows that using **deionized water** increases dissolved NO_2^- in water.

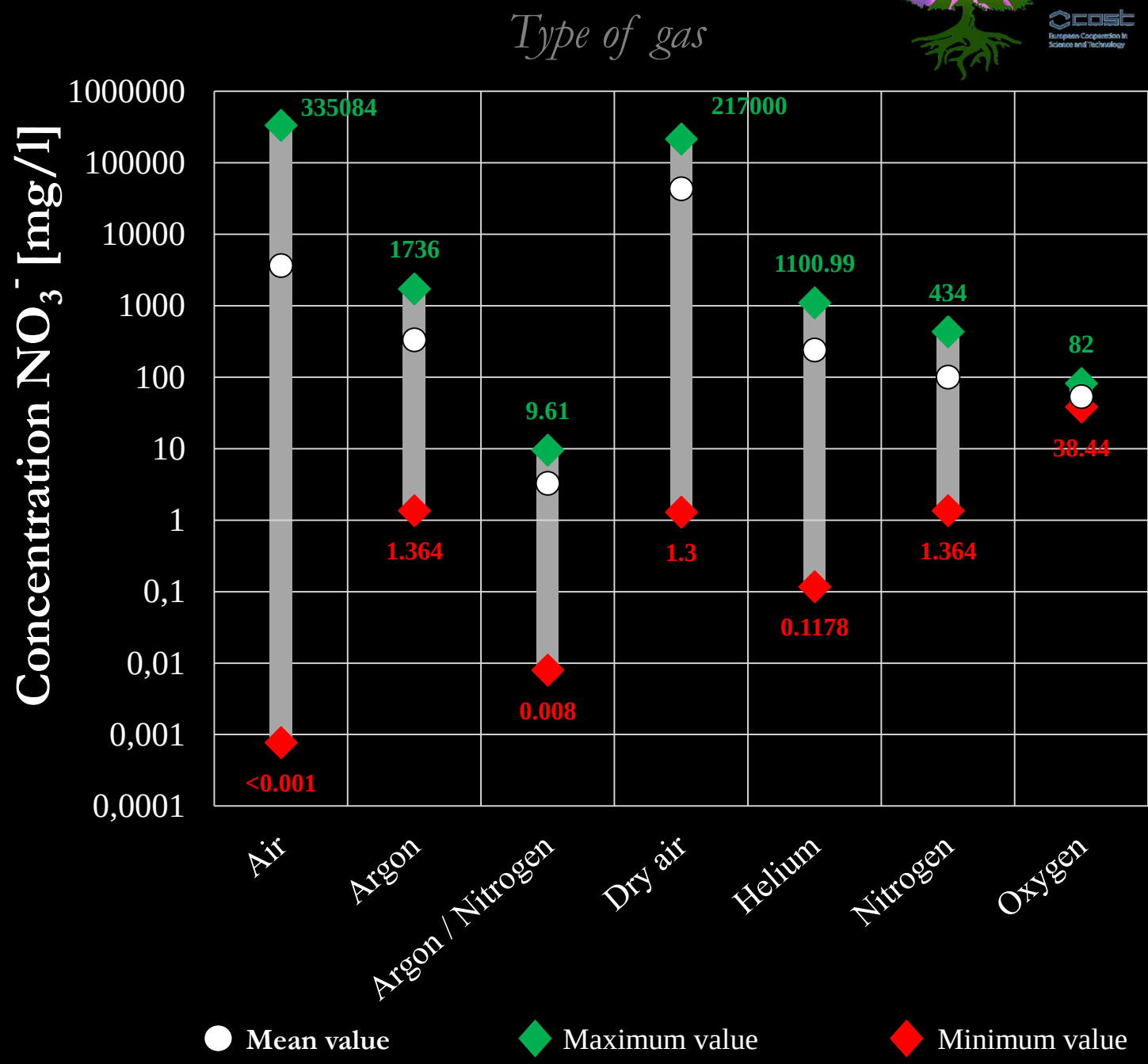


Mean value Maximum value Minimum value

The concentration of NO_3^- is a parameter to evaluating the efficiency of PAW treatments. The graph shows how NO_3^- production is maximized by using **Surface DBD** devices.



The concentration of **NO_3^-** is largely influenced by the type of gas used during the treatment. The graph shows that using **air** as the process gas maximizes **NO_3^-** concentration.



The concentration of dissolved **NO_3^-** depends on the type of water used during the process. The graph shows that to increase the concentration of **NO_3^-** it is more efficacy to choose **distilled water** as the liquid to be treated.