Background
The regional aerosol in the Netherlands has a large proportion of ammonium-nitrate, which could be influential in forming clouds, see poster “The importance of ammonium-nitrate aerosol as regional CCN-agent”. The actual proof is in assessing the number of aerosol particles that contains ammonium-nitrate and form cloud droplets.

Approach
The activation of ammonium-nitrate is experimentally assessed in our cloud-chamber, see figure. The cloud-chamber is unique because of its size and associated features:
- Air is drawn in from outside and the number of droplets formed is similar to that in actual clouds
- Note: commercial CCN-counters do not have this feature

Number of aerosols and the amount of ammonium-nitrate is measured
The ammonium-nitrate is measured with novel monitor developed by ECN/Applikon: “MARGA-sizer”

The number and amount of ammonium-nitrate (and ammonium-sulphate) are determined before and after the chamber

The difference in number and content before and after the chamber provides the activation efficiency

Results
First NOVEL finding:
Ammonium-nitrate is more efficient in cloud formation than the “standard” ammonium-sulphate.
The reason is that ammonium-sulphate is in particles that are too small to act as Cloud Condensation Nuclei.