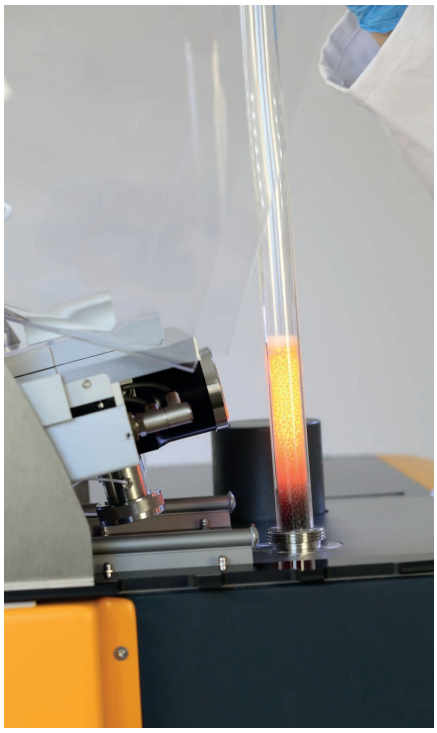
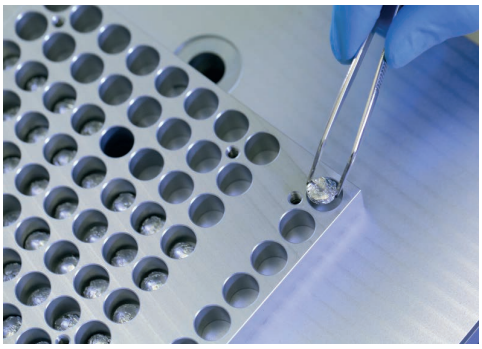
The cost and environmental impact of high sample weights in Dumas Nitrogen analysis

The question of cost and environmental impact of methods are usually high up in the minds of most lab managers. Gerhardt have striven to make the Dumas method as environmentally friendly and cost effective as possible.

Catalysts without Chrome and non-toxic absorbents for water and Carbon dioxide from the gas stream demonstrate this.

Gerhardt have produced a document discussing this in more detail using meal and soya. Over a period of 2 months analysis was performed using a variety of sample weights. This analysis showed a very small improvement in results standard deviations with increasing sample weights between 100mg and 500mg. The DUMATHERM® has the ability to use small sample weights and calculates exactly the amount of Oxygen required for combustion to minimize gas usage. The less Oxygen used the less Copper required to remove the Oxygen from the gas stream before passing the detector.





By using effective sample preparation equipment such as the FRITSCH Pulverisette 14 sample homogeneity was improved. Better sample homogeneity allowed smaller sample weights.

This led to the conclusion that whilst increased sample weights may have a very slight benefit on reproducibility, the lower costs and environmental impact of using smaller weights are beneficial.

DUMATHERM®

If you would like a copy of our work done on sample weights or further information on the DUMATHERM® please contact your local C. Gerhardt specialist or e-mail us at marketing@gerhardt.de.