

HYDRANAL™ Technical Information Sheet T002 Rev. 1

Recommendation of the Sample Size for the Volumetric KF Titration

Ideally, the sample size in the volumetric KF titration should be selected in such a way that, depending on the expected water content and the titer of the reagent used, about half of the burette volume is consumed.

To avoid too small sample sizes (less than 20 mg) at particularly high-water contents, it is advisable to consume large volumes, i.e. to almost exhaust the burette volume fully or to switch to a larger burette. With very small water contents, it is often the case that the sample weight cannot be selected large enough, meaning that the rule of thumb of "half a burette volume" cannot be observed. Significantly smaller consumptions must often be accepted. To improve the accuracy, a reagent with as low titer as possible should be favoured in these cases.

In all cases the sample size of course depends on the composition, solubility, and availability of the respective sample material. An individual adjustment is often necessary. The following table serves as a guide for selecting of the optimum sample size:

		Titer 5 mg/mL			Titer 2 mg/mL			Titer 1 mg/mL		
		Burette volume			Burette volume			Burette volume		
		5 mL	10 mL	20 mL	5 mL	10 mL	20 mL	5 mL	10 mL	20 mL
		Recommended sample size (g)			Recommended sample size (g)			Recommended sample size (g)		
Expected water content	90%	X	0.04	0.08	X	X	X	X	X	X
	75%	0.03	0.05	0.1	X	0.02	X	X	X	0.02
	50%	0.045	0.08	0.16	X	0.03	0.05	X	X	0.025
	20%	0.08	0.125	0.25	0.025	0.05	0.1	X	0.025	0.05
	10%	0.125	0.25	0.5	0.05	0.1	0.2	0.025	0.05	0.1
	5%	0.25	0.5	1	0.1	0.2	0.4	0.05	0.1	0.2
	2.5%	0.5	1	2	0.2	0.4	0.8	0.1	0.2	0.4
	0.25%	5	10	20	2	4	8	1	2	4
	0.1% (1000 ppm)	12.5	25	25	5	10	20	2.5	5	10
	0.01% (100 ppm)	25	25	X	25	25	X	25	25	X
	0.001% (10 ppm)	X	X	X	25	X	X	25	X	X

Consumption >1/2 burette volume
Consumption approx. 1/2 burette volume
Consumption < 1/2 burette volume
X = not recommended