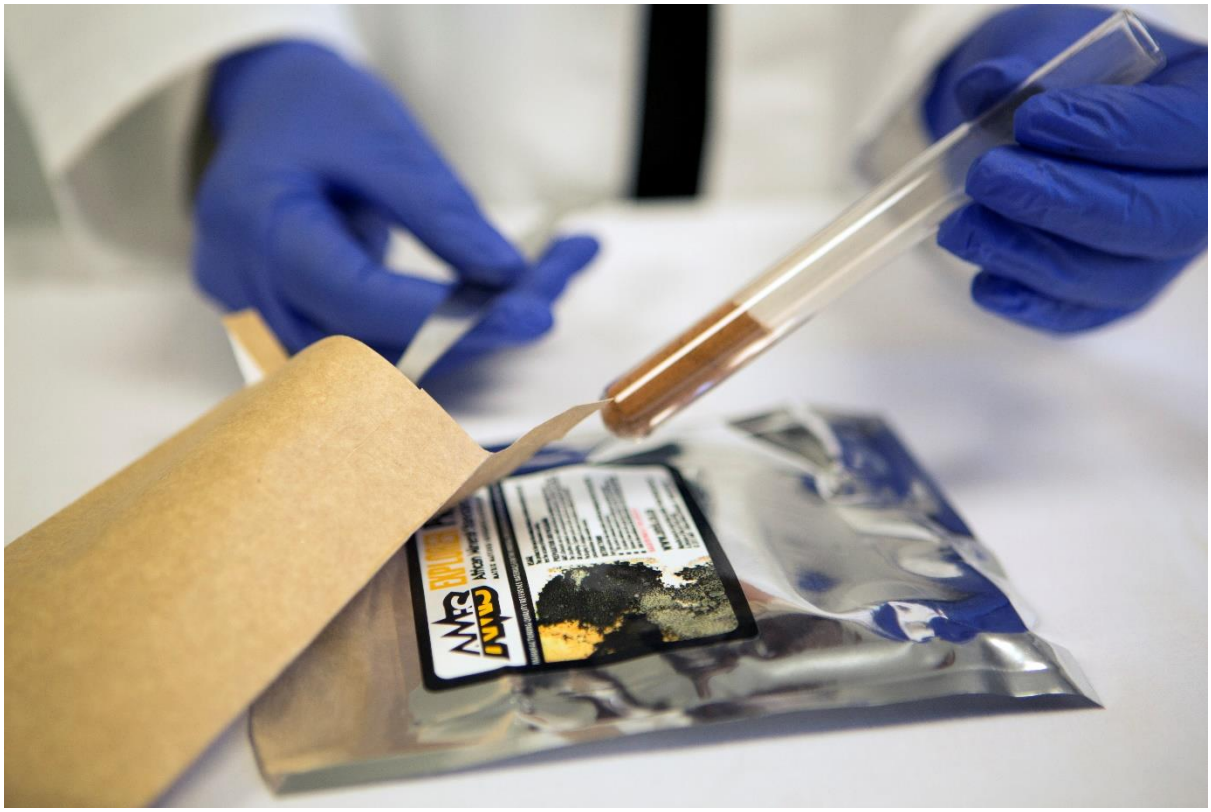
AMIS Product:
Best Practice Manual



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1. Receipt of material

1.1 For proper handling of our material, please refer to AMIS MSDS
1.2 Ensure the material is properly sealed i.e. the sample is not open or tampered with
1.3 Ensure that the correct AMIS CRM and quantity is received as per your order
1.4 Ensure the samples are stored in a cool dry area, in such a way that it does not compromise the integrity of the CRM

2. Preparation and correct use of material

2.1 The sample should be agitated for at least 15 seconds before opening the CRM
2.2 Ensure the weighing equipment and the area around the weighing balance is clean and free of contamination. The material should be weighed according to best weighing practices
2.3 AMIS certified values are reported on a dry-basis, the user laboratory is required to dry a portion CRM material in air at 105ºC in a drying oven to constant mass to determine the moisture content.

3. Moisture factor calculation

Example: Moisture content of the CRM determined by the laboratory = 0.500%

3.1 The concentration of the CRM determined by the laboratory is 12.62% (dry basis). Calculating the moisture correction factor using the above values:

$$Moisture\ correction\ factor = 100 - 0.500 / 100 = 0.995$$

3.2 Multiplying the factor of 0.995 by determined analyte concentration on an air-dry basis:

$$0.995 \times 12.62\% = 12.56\%$$

4. Recommendations

4.1 Calibrations

4.1.1 Ensure all calibration standards and unknown samples are matrixed matched
4.1.2 Ensure all calibration standards are treated the same as unknown samples
4.1.3 The reported uncertified concentrations are to be used as indicative values only

4.2 Preparing Quality Control charts using AMIS CRMs

4.2.1 Over a period of time, analyse a minimum of 10 replicates
4.2.2 Evaluation of data:
4.2.2.1 Remove outliers
4.2.2.2 Determine the mean of replicates without the outliers and validate the obtained mean versus the certified value as follows:

The concentration of the CRM determined by the laboratory = 4.59%

CRM Certified Value	Expanded Uncertainty (U)	Coverage Factor (k)	Mean (n=9)	n	Standard Deviation (s)
4.62%	0.08%	2.25	4.59	9	0.01015

The standard uncertainty (*u*) is found by dividing the expanded uncertainty by the coverage factor:

$$u = \frac{0.08}{2.25} = 0.0356\ \%$$

Using the observed mean for the replicate data (*n*=9) obtained for the CRM and substituting into

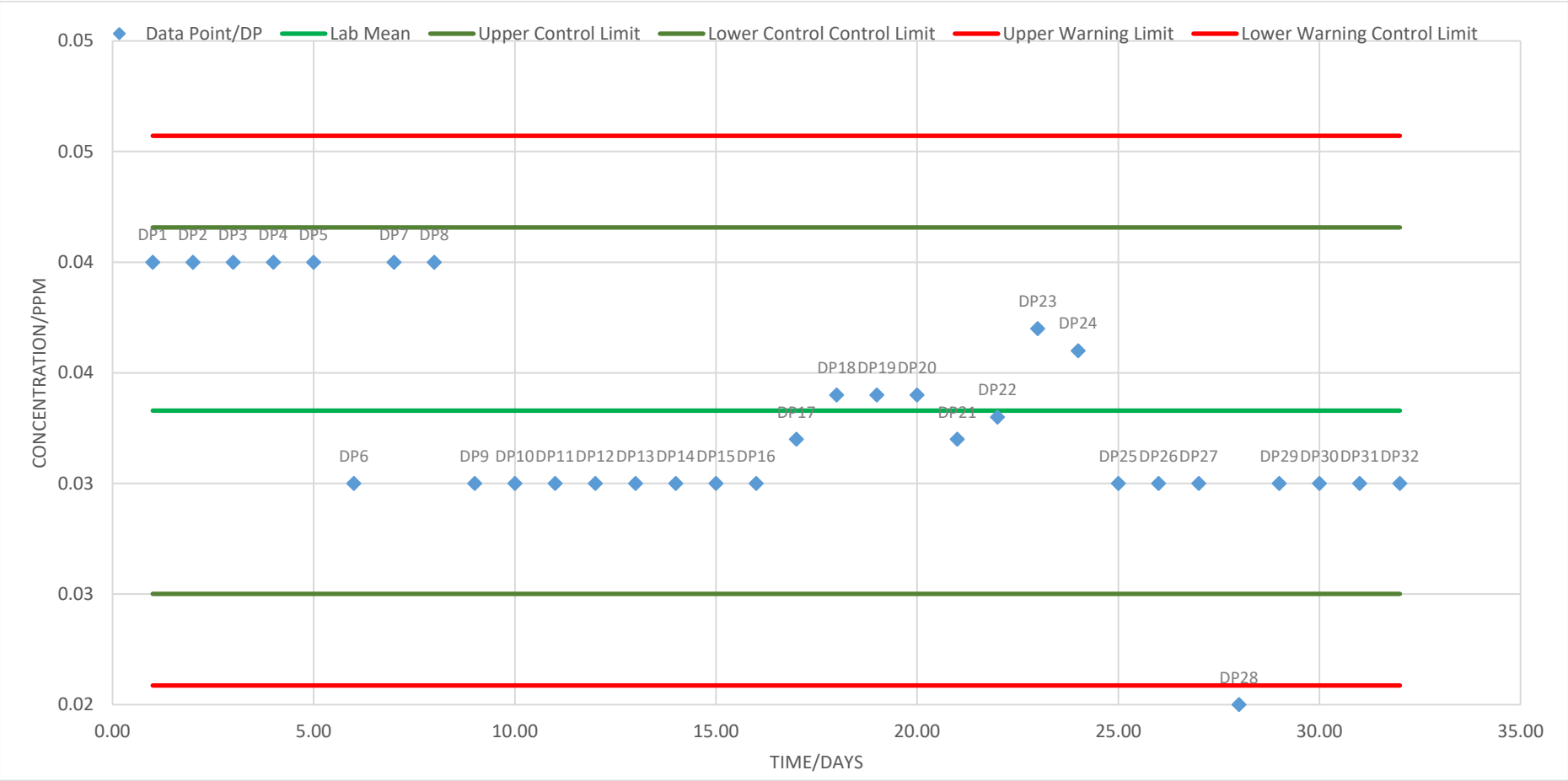
$$t_{calc} = \frac{|\bar{x} - \mu|}{\sqrt{0.0356^2 + \frac{0.01015^2}{9}}} = \frac{|4.59 - 4.62|}{\sqrt{0.00126 + 0.00001145}} = 0.84$$

Therefore, t_{calc}= 0.84 and $t_{crit}(5\%, 8) = 2.31$ (*df* is 8, therefore, t_{crit}=2.31) which is >0.84.
$t_{crit} > t_{calc}$, hence the laboratory mean is validated

NB: Should $t_{calc} > t_{crit}$, it indicates the method is not accurate and the laboratory should investigate factors affecting accuracy.

4.2.3 After the validation of the mean, the standard deviation should be calculated

4.2.4 Plot a graph that has an upper and lower control limit and upper and lower warning controlling limit as per below



Should you require more information visit our website: www.amis.co.za or contact us on: +27 11 923 0800