LACS

Report
Round 2
October2017

HEALTH & SAFETY LABORATORY

LOW ASBESTOS CONTENT SCHEME

Round 2 Sample Details

BACKGROUND

This report covers Round 2 of the Low Asbestos Content Scheme (LACS). Round 2 was open to laboratories worldwide. Laboratory participation was as follows: 4 UK, 86 EU and 1 RoW.
91 laboratories subscribed to this round, with 88 submitting results.

SAMPLES

One sample was circulated as follows: Sample LACS002 – This sample was talc containing wollastonite.

SCREENING & VALIDATOR INFORMATION

The sample was prepared for circulation following our normal internal screening process of samples with representative sub-samples scanned using stereo-zoom and polarised light microscopy to assess homogeneity and suitability. Approximately 10% of the total number of samples despatched were validated by 4 independent laboratories.

INFORMATION SUBMITTED BY LABORATORIES

Laboratories used the HSL web-based PT data entry system to submit their results for this round. Results were submitted as asbestos type(s) present and for the Quantitative element, the total % asbestos.

MAJORITY OF ERRORS

Sixteen laboratories recorded errors for sample LACS002. The majority of errors for this sample were false positive reporting of anthophyllite. This was a non-asbestos sample consisting of talc, with approximately 0.1% wollastonite added. Wollastonite is a calcium silicate mineral and often has an acicular morphology (elongate crystals) - it is not normally fibrous. When analysed by electron microscopy and energy dispersive X-ray analysis, these elongated crystals will have different elemental composition to any of the regulated asbestos types and therefore should not be identified as asbestos when using electron microscopy combined with energy dispersive X-ray analysis (EDX) and electron diffraction (ED). However, elongate wollastonite “fibres” may have similar refractive indices to tremolite/anthophyllite and may be miss identified if polarised light microscopy is used.
A small number of elongate talc “fibres” may also be visible when the sample is examined by electron microscopy, although the majority of the talc is comprised of mainly plate-like particles. The elongated talc fibres have magnesium silicate composition and when examined by transmission electron microscopy (TEM), have characteristic hexagonal electron diffraction (ED) patterns normally associated with talc.

LACS QUALITATIVE RESULTS

Sample 1

Seventy-two laboratories correctly reported no asbestos
One laboratory reported crocidolite & chrysotile
Two laboratories reported chrysotile
One laboratory reported tremolite
Twelve laboratory reported anthophyllite
Three laboratories did not submit a result.
These results are presented graphically in Charts 1 and 2.

LACS QUANTITATIVE RESULTS

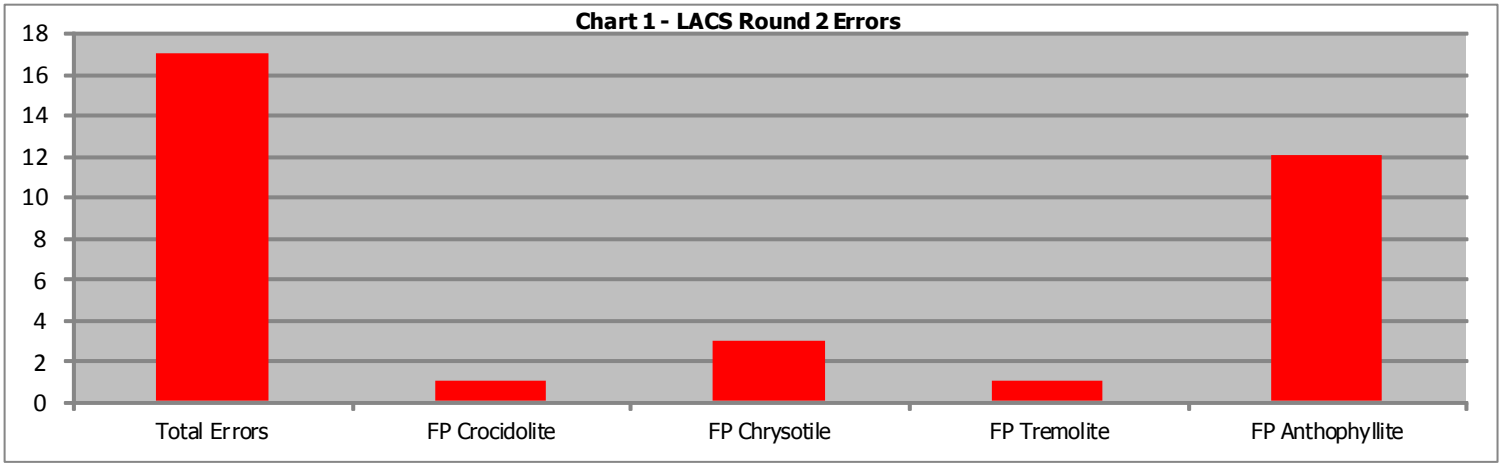
Due to the assigned result being 0%, the standard deviation of results submitted has been used to calculate the z-score, for the purpose of this round - 0.018. Thirty-seven laboratories submitted quantitative results;

- 35 (94%) laboratories achieved a z-score of < ± 2, this is normally considered to represent “Satisfactory” performance
- 1 (3%) laboratory achieved a z-score of between ± 2 - ± 3, this is normally considered to represent “Questionable” performance
- 1 (3%) laboratory achieved a z-score of > ± 3, this is normally considered to represent “Unsatisfactory” performance.

These results are presented graphically in Charts 3 and 4.

1. Type Of Errors Obtained

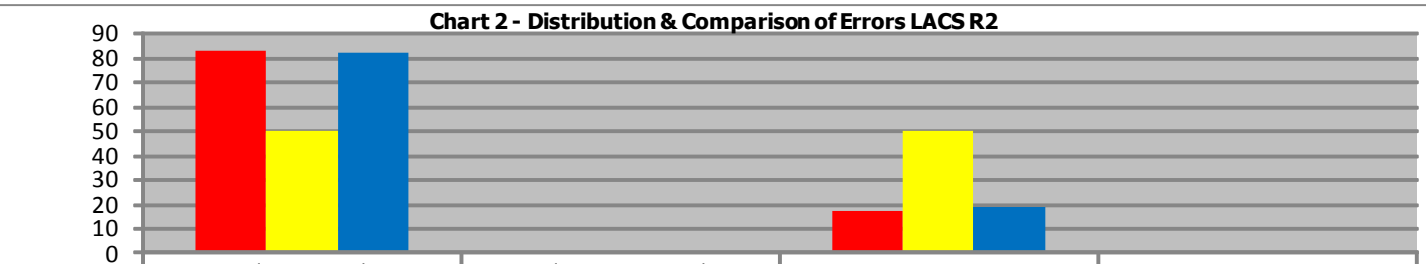
Chart 1 illustrates the errors made by participating laboratories. 17 errors were made by laboratories on sample LACS002. Being a non-asbestos round all 17 errors made were falsely identifying asbestos present. 1 crocidolite and chrysotile; 2 chrysotile; 1 tremolite and 12 anthophyllite.



False Negative = Component has been missed. False Positive = Component has been incorrectly identified as present.

2. Errors for UK & Non-UK Laboratories

Chart 2 illustrates the distribution of scores for all participating laboratories. 72 (82%) laboratories obtained a score of zero in this round, indicating that these laboratories had not made any errors. The distribution of scores obtained by UK (United Kingdom) and Non-UK laboratories is also compared; 2 (50%) UK laboratories and 70 (83%) Non-UK laboratories obtained a score of zero for the round.

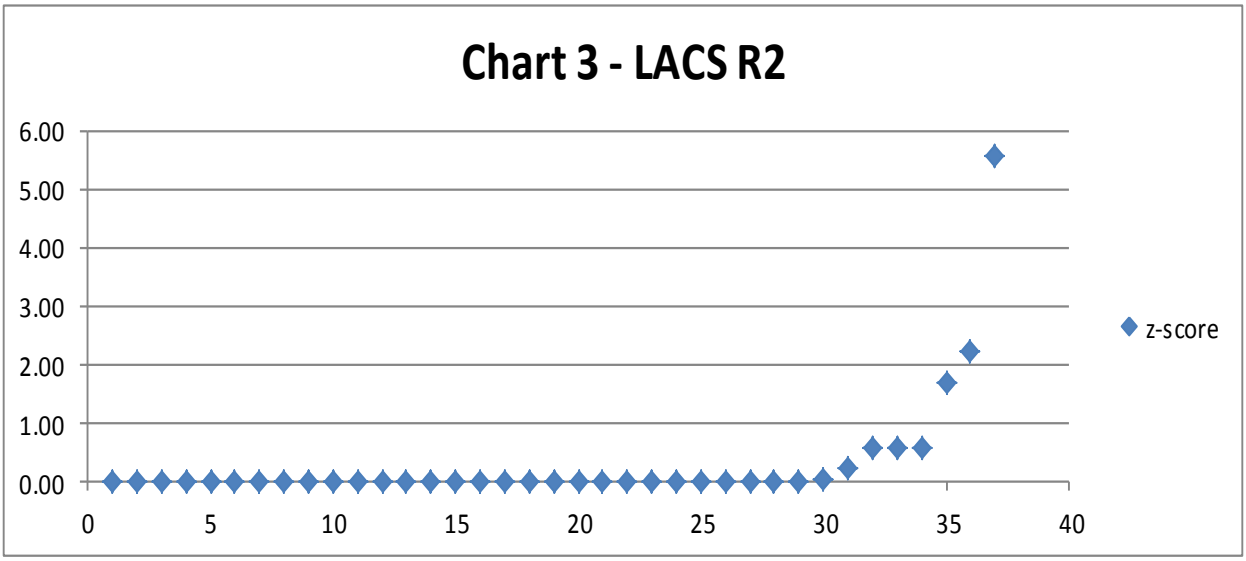


	0 (No Errors)	7 (1 Minor Error)	8 - 32	> 32
Non UK%	83	0	17	0
UK%	50	0	50	0
Total %	82	0	18	0

3. Quantitative Results - z scores

Chart 3

Scatter graph of z scores for the 37 laboratories who submitted a quantification result.



4. Quantitative Results

Chart 4 illustrates of the 37 laboratories who submitted a quantification result, 35 laboratories (94%) achieved a satisfactory result i.e. a z score of < ± 2. 1 laboratory (3%) achieved a questionable result with a z score of between ± 2 and ± 3. 1 laboratory (3%) achieved an unsatisfactory result with a z score of > ± 3.