

## DIRECT MICROSCOPIC EXAMINATION – (DME) OF BULK, SWAB AND TAPE SAMPLES

These guidelines are intended to be a "reactionary threshold" to incite further investigation. They are not intended for use of health significance nor are they necessarily representative of unacceptable indoor environments.<sup>†</sup>

Note that spores are ubiquitous and can never be completely removed. Moulds require food, water, and spores to proliferate. Removing any one of these factors can help control fungal growth.<sup>‡</sup>

1 RELATIVE ABUNDANCE OF CONIDIA/HYPHAL FRAGMENTS PER HIGH POWER FIELD/hpf (630x)		
RATING	RELATIVE AMOUNTS OF OBSERVED FUNGAL STRUCTURES	SIGNIFICANCE
Rare	0-1 per high power field	Indicates a minimal amount of conidia (spores) and/or other fungal structures. Most normal indoor surfaces will show no to low fungal conidia/hyphal fragments. Generally, water indicator moulds such as <i>Stachybotrys</i> or <i>Chaetomium</i> should be further investigated.
Few	2-4 per high power field	Indicates low amounts of settled spores. Typically, this amount is not consistent with active fungal growth, however, it may suggest an active source nearby, or that a surface has not been cleaned appropriately. The presence of hyphal fragments or fruiting structures may indicate a nearby source of contamination. Generally, the presence of moisture indicator moulds (e.g., <i>Stachybotrys</i> or <i>Chaetomium</i> ) may suggest a chronic or acute water condition from sources such as roofs, plumbing leaks, increased humidity, etc.
Moderate	5-10 per high power field	Indicates that the sample area displays active fungal growth or an elevated amount of settled spores. The presence of conidia/hyphal fragments and fruiting structures (conidiophores, phialides) would support the premise that active fungal growth is occurring.
Many	11-100 per high power field	Indicates a heavy amount of fungal contamination (conidia/spores). Generally, this category is indicative of a surface that is or has been affected by active fungal growth. The presence of fruiting structures or hyphal fragments may support the premise that fungal growth is on-going.
Numerous	>100 per high power field	Indicates that the sample area was highly contaminated with fungal spores and/or hyphal fragments. Samples in this category display an unusually high number of conidia/spores or other fungal structures in each microscopic field.

*Note: This scale of relative abundance is affected by the size of the sampled area. Obviously, if very large areas are sampled with a swab for example, this may cause the results to be skewed into a lower or higher category. These results correspond, roughly, to a sample area measuring one square inch. The presence of moderate to numerous conidia/spores alone does not necessarily indicate the viability of the spores.*

CHART FOR SKIN CELLS—QUALITATIVE ANALYSIS USING 630X	
SKIN CELL RATING	RELATIVE AMOUNTS OF OBSERVED SKIN CELLS/hpf (630 X)
0	No skin cells present
1	<2 per high power field
2	2 to 5 per high power field
3	6 to 10 per high power field
4	11 to 15 per high power field
5	≥16 per high power field

CHART DEBRIS RATING –DME ANALYSIS USING 630X		
DEBRIS RATING	CONDITIONS FOR REPORTING DEBRIS RATING	SIGNIFICANCE
0	Debris is not present.	Sample may be a blank sample or from a very clean or remediated area.
1	Debris is present and <10% of the average viewing field is obscured.	Minimal amount of debris is observed.
2	Debris is present and 10% to <40% of the average viewing field is obscured.	Low amount of debris is observed, relative amounts of conidia/hyphal fragments may be affected.
3***	Debris is present and 40% to 75% of the average viewing field is obscured.	Moderate amount of debris is observed, relative amounts of conidia/hyphal fragments may be underestimated.
4***	Debris is present and >75% of the average viewing field is obscured.	High amount of debris is observed, relative amounts of conidia/hyphal fragments are estimated.
5****	Debris is present and the entire viewing field is obscured.	Presence of conidia/hyphal fragments noted. Suggest recollect.

\*\*\* A debris rating of 3 or greater indicates that the accuracy of the analysis is likely affected.

\*\*\*\* A debris rating of 5 indicates that only the presence of conidia/hyphal fragments was noted. Recollection of the sample is suggested.

### REFERENCES

<sup>†</sup> *Recommended Guidelines for Indoor Environments*, Indoor Air Quality Association, Inc., 10400 Connecticut Avenue, Suite 510, Kensington, MD 20895, IAQA 01-2000.

<sup>‡</sup> *Bioaerosols Assessment and Control*, Macher, J., ACGIH 1999.