

The use of the AIRsteril MF in Material Recycling Facilities.



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A health survey of Materials Recycling Facilities (MRFs) by the HSE in 2013^{*} recorded a wide range of respiratory-related symptoms experienced by workers in this industry. The conditions and % affected were reported as:

Shortness of breath,	40%	Increased / sneezing.	3%
Blocked nose,	16%	Watery eyes,	3%
Dry eyes,	9%	Wheeziness,	2%
Cough with phlegm,	9%	Chest tightness,	2%
Runny nose,	8%	Dry / itchy throat,	1%
Dry cough,	6% and	Difficulty in breathing.	1%

84% of workers reported health problems that they attributed to their job; 15% of these were seen by their General Practitioner.



Employees working in MRFs can be exposed to general airborne dust above the level where it is considered a substance hazardous to health (10 mg/m3 as an 8-hr TWA). There is also the potential for exposure to airborne fungi (moulds and yeasts) and bacteria which can cause infections and trigger allergies and asthma; and to

potentially harmful mould volatile organic compounds (mVOCs) and bacterial endotoxins. While PPE and dust suppression systems can limit exposure, the AIRsteril MF unit has been developed to further reduce microbiological loading (bio-aerosols) in the air and surfaces of MRFs.





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Ongoing trials at MRFs have demonstrated the efficacy of the AIRsteril MF in reducing bio-aerosols in Pre-sort and Sorting Cabins, and baling areas. A typical reduction in bio-aerosol levels (total counts of micro-organisms) is shown below:



Samples of bio-aerosols were taken over a 12 hour shift. When the AIRsteril was installed the initial count of micro-organisms was 704,800 colony forming units/m3 which exceeded the Company's 'External Breech' level. Bio-aerosol sampling after installation demonstrated as significant reduction in counts of micro-organisms to 21,000 cfu/m3 after 3 months –

a 97% reduction.

*HSE. (2013). Occupational Hygiene implications of processing waste at Materials Recycling Facilities (MRFs) Exposure to bioaerosol and dust. www.hse.gov.uk/research/rrpdf/rr977.pdf

