

Thank-you James Wheeler



HSE's Approach to Tackling Respiratory Disease in Agriculture and Food Manufacturing

and the challenges of exposure measurement and control

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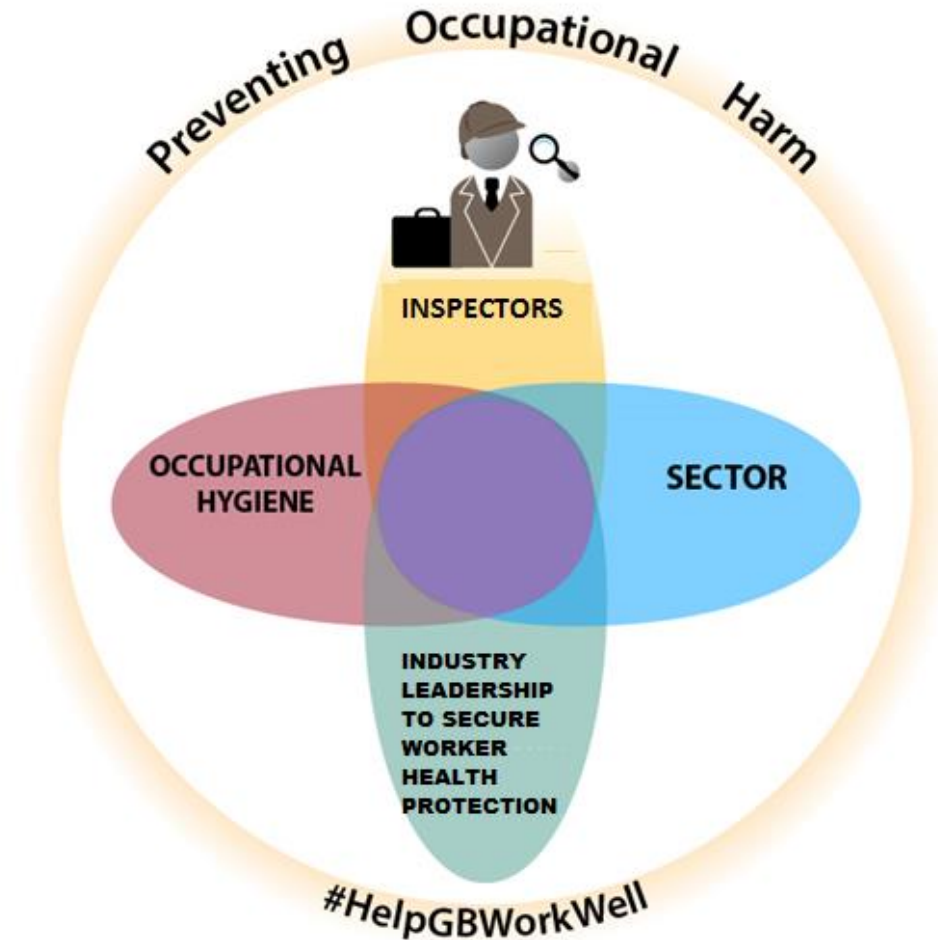


Tackling
ill health



Acting
together

How we work together



Acting together

Current HSE Health Priorities

- High risk industries
- Proactive inspections
- Detail in FOD work-plan on HSE website
- Continued focus on inspections in Food Manufacturing for this new work year from September 2018 to March 2019.

Leading Indicators Pilot

- Achieving a more consistent approach to inspections by inspectors
- Improving the quality of information recorded
- Measuring industry compliance with COSHH over time
- Enabling better targeting
- Ultimate aim is to improve worker health protection

Definition of Flour Dust: EH40

Flour dust is taken to be finely ground particles of cereals or pulses (including contaminants) that result from any grinding process and from any subsequent handling and use of that 'flour'.

Any additives (eg flour improvers) are included in this definition only after they have been added to the final product mix.

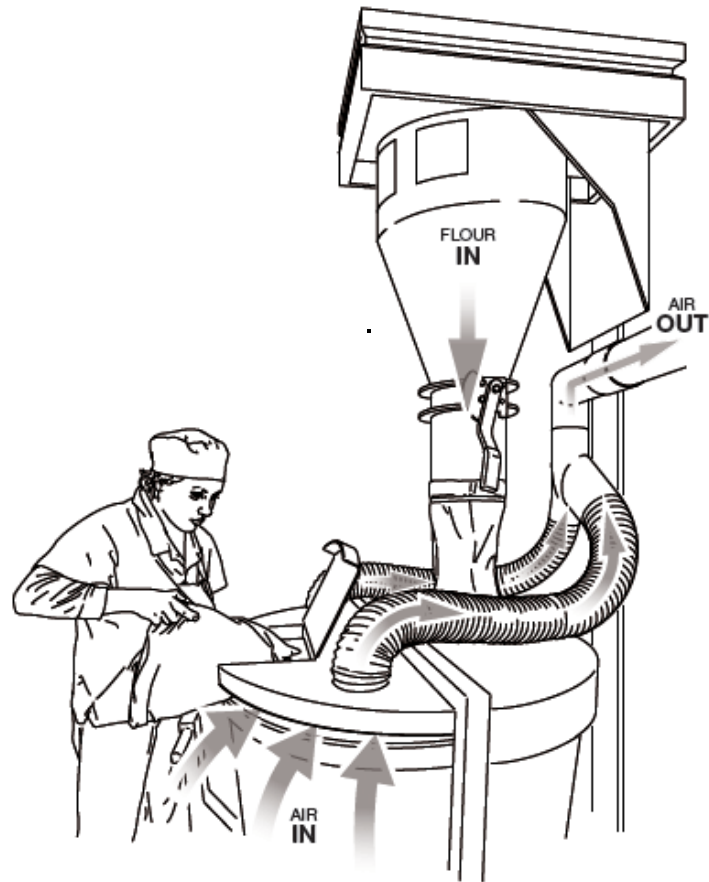
ASTHMAGEN = CONTROL TO ALARP

Control Solutions for Flour

- RPE
- LEV
- Low-dust flour



Tipping Station LEV



What is Low-dust Flour

- A flour which has been modified to reduce the amount of inhalable dust generated when it is handled and used in baking tasks.
- Finer flour particles are bound by adding oil or agglomerate when heat treated.
- Low-dust flours have a reduced number of finer particles when compared to traditional baking flours
- Low-dust flours can be used as release flours and dusting flours.

Low-dust Flour

- 2 *known* types supplied here in GB
- Processed by different methods:
 - 1) Hydrothermal treatment to process flour
 - 2) Oil added to unprocessed flour

Summary of Dustiness Results

Test	Normal baking flour (mean value)	Oil added to flour (mean value)	Heat treated flour (mean value)
Inhalable dustiness (mass fraction mg kg ⁻¹)	565	10	161
Dustiness classification	Low	Very low	Very low

Measuring Flour Dust

IOM Sampler



Button Sampler



Measuring Flour Dust Exposures

- MDHS14/4 ✓
- Do not use a real-time dust monitor ✗

Table showing results for measurements of flour dust exposure whilst using a round sieve

Test	Exposure / mg.m ³					
	Traditional Flour		Low dust 1		Low dust 2	
	Gravimetric using Button sampler	Real-time	Gravimetric using Button sampler	Real-time	Gravimetric using Button sampler	Real-time
1	3.33	0.159	0.46	0.028	1.27	0.056
2	3.16	0.158	0.51	0.019	1.40	0.047
3	4.65	0.223	0.72	0.022	1.81	0.043
Mean Result	3.71	0.180	0.56	0.023	1.49	0.049

Demonstration Video is on YouTube: Low dust flour



<https://www.youtube.com/watch?v=ZQ3cPVjLwP0>

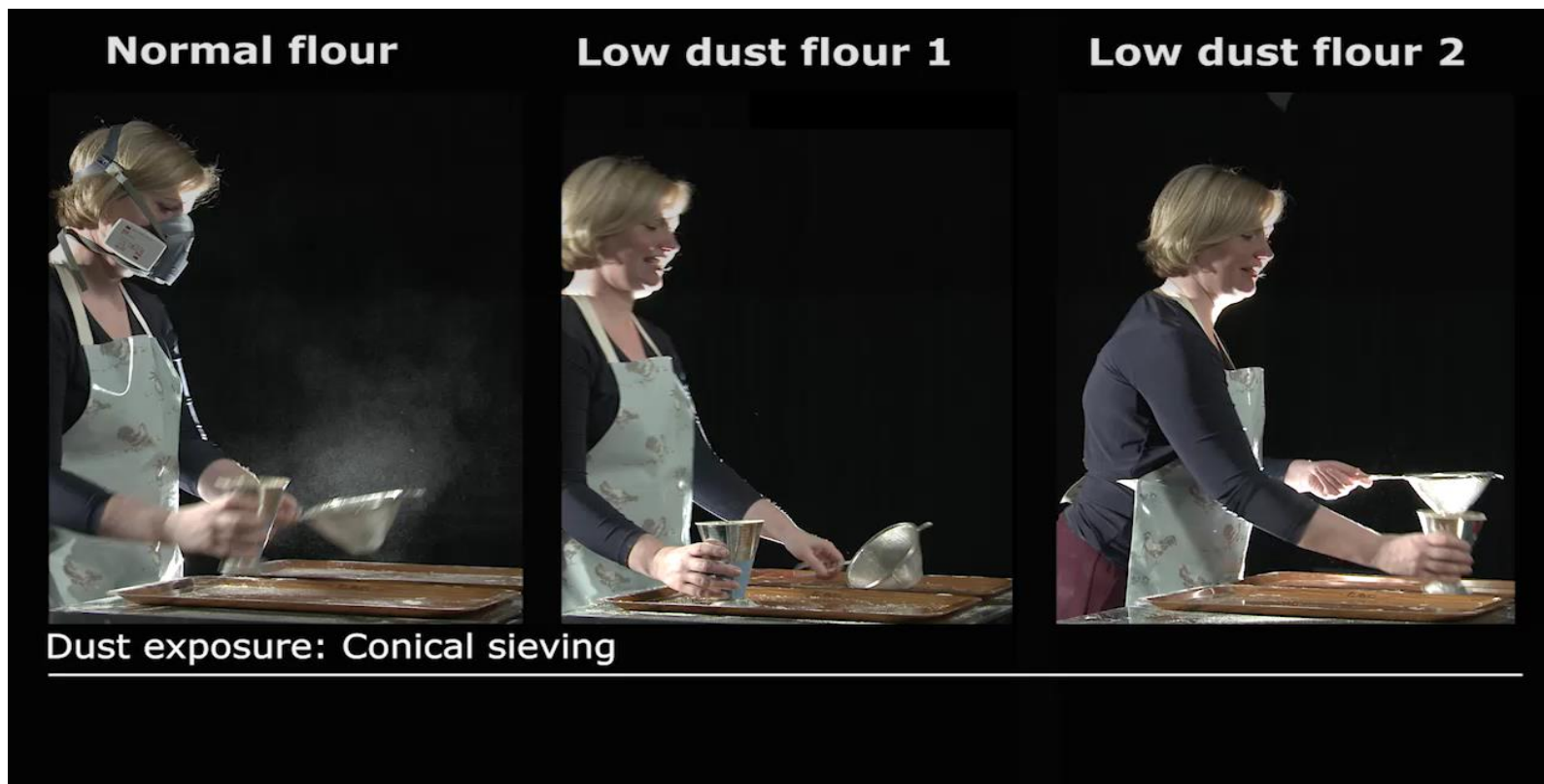


Table of Results

Task	Low-dust flour 1 Oil added to flour % exposure reduction	Low-dust flour 2 Heat treated flour % exposure reduction
Conical sieving	85%	60%
Round Sieving	86%	47%
Tipping and Pouring to fill a container eg dredger	78%	67%

The % exposure reduction stated is based on a controlled study using reproducible tests.

The exposure reduction value stated is the reduction achieved by substituting a traditional baking flour with a low dust flour for that task.

More to Come

- Case study from a bakery using low-dust flour
- HSE report: *The Quantitative Assessment of Flour Dust Exposure Reduction when using Low-dust Flours*



Thanks for Listening

Now over to Amy and Howard