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Mr Ian Saunders,
Advanced Hygienic Contracting Ltd,
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Cardale Park,
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HG3 1GY.

Ref: L.2313

Date: 29/06/2016

Dear Ian,

Occupational Hygiene Testing at the Countess of Chester Hospital:

Acting on your instruction I visited the Countess of Chester Hospital on the 9th June 2016, to undertake occupational hygiene testing on your two operatives working on the site of a new hospital building. Paul Partington & Mike Dunning were installing Bioclad PVC wall cladding into new ensuite facilities in the bathrooms of each individual room. The Bioclad was measured up, cut to size, formed to fit the corners, and glued with Bioclad hygienic panel adhesive glue, before being placed into the rooms. The concern was that the possible solvent and isocyanate in the two pack polyurethane glue might represent a health hazard to the individuals using it.

Sampling was undertaken by myself, using standard equipment which complied with the method set out in HSE document MDHS 25/3 (Method for the Determination of Hazardous Substances). The method specifies the use of piperazine impregnated filters, which trap the isocyanate (in this case MDI or Methylenebis(phenyl isocyanate)). The impregnated filters are loaded into stainless steel filter holders which comply with MDHS 14/3, and pumped at 2.0 litres per minute, while located in the breathing zone of the operatives. Solvent exposure was sampled using 3M diffusive badge samplers, similarly placed in the breathing zone of the operatives and complying with the methodology in MDHS 70 & 88. Analysis of the samples was undertaken by a UKAS accredited laboratory using HPLC (High Performance Liquid Chromatography) and GC (Gas Chromatography) respectively. The analytical results are shown in the tables overleaf.

Results are assessed by comparison with the Workplace Exposure Limits (WEL) set out by the HSE in their book EH40/2005 Workplace Exposure Limits (second edition 2011). WELs are set on the basis that most companies operate an 8 hour working day, and that therefore each worker is exposed for 8 hours, and has a 16 hour recovery period in each 24 hours, with an extended recovery period over the weekend. Current guidance from the HSE is that action should be taken to reduce exposure if an operative's exposure exceeds 40 % of the WEL for an individual compound, or where applicable for a mixture of compounds.

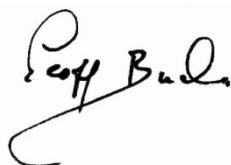
The results show that Paul & Mike actually received some 0.2 % or less of the WEL for the solvents that were found in the testing, and some 0.3 % or less of the isocyanate (MDI) that was found in the testing. The analytical instruments have a measureable detection limit for these compounds, and in the case of solvent analysis dichloromethane (methylene chloride) was found to be below this detection limit, but a small amount of ethyl acetate was found. Similarly analysis of MDI was just on the detection limit or below.

Both solvents have a sleep inducing (narcotic) effect, and can be considered as a combined WEL, but the MDI must be treated separately. In both cases the exposure found was entirely satisfactory.

Advanced Hygienic Contracting Ltd, Chester Hospital		Aspen Environmental Ltd				
Charcoal Badge Sampling (3M 3500) for occupational hygiene						
Sampling Information						
Sample Ref	Date	Employee	Sampling Time		Elapsed minutes	Percentage of Combined WEL
			Initial	Final		
G11237	09/06/2016	Paul Partington	09:50	14:55	305	0.20
G11238	09/06/2016	Mike Dunning	09:50	14:55	305	0.13
Analytical Results (Gas Chromatography)						
			Ethyl Acetate	DCM		
CAS No			141-78-6	75-09-2		
Uptake Rate mls / min			34.5	37.9		
WEL mg/m ³			1460	350		
Micrograms of Organics Recovered						
Sample Ref	Minutes Sampled			Ethyl Acetate	DCM	
G11237	305			25.6	< 1.4	
G11238	305			14.9	< 1.4	
Concentration of Organic in Air (milligrams per cubic metre)						
G11227			2.4	0.1		
G11228			1.4	0.1		
Percentage of Combined Workplace Exposure Limit (EH40/2005 2nd ed 2011)						Total
G11227			0.17	0.03	0.20	
G11228			0.10	0.03	0.13	

Advanced Hygienic Contracting Ltd, Chester Hospital		Aspen Environmental Ltd								
Isocyanate (MDI) Sampling (09/06/2016)										
Sample Ref	Location or Individual	Sampling Time			Mean Flow Rate litres/min	Sample Volume Ambient Litres	MDI as NCO (ug)		Total ug	Isocyanate Concentration mg/m ³
		Initial	Final	Elapsed Minutes			Monomer	Prepolymer		
G11234	Paul Partington	09:50	14:55	305	2.04	622.20	< 0.02	< 0.02	0.04	< 0.00006
G11235	Mike Dunning	09:50	14:55	305	1.99	606.95	0.02	0.02	0.04	0.00007
Standard conditions are 293 K , 1013 mb										
The HSE Workplace Exposure Limit (WEL) for Isocyanates is 0.02 mg/m ³										

Yours sincerely,
For Aspen Environmental Ltd,



Dr Geoff Buck,
Director