

February 24, 1977

NOTES ON: Normal Use Levels of Respirable Talc
 Preliminary Studies
IRI Project No. 404259

This study depends upon assay of mg by atomic absorption spectroscopy (AAS) to determine the weight of respirable talc particles collected. Sampling is with a Cassella cyclone at a flow rate of 1.9 L/min.; ^{the respirable} fraction is trapped on a 0.8u pore size membrane filter for subsequent size analysis by microscope, and mass determination by AAS.

In this study, the sampling device was placed relatively far away from the subjects noses when compared to our (J&J) studies:

	<u>IRI Study</u>	<u>J&J Study</u>
Infant dusting (doll)	6" to 12"	(Live baby) 3" to 6"
Adult dusting	1" to 3 ft.	2"

The Casella cyclone is a bulkier instrument with its own battery powered pumps.

In the IRI study, the sampling time was 5 min. for a single powdering test, although actual powdering application times were about 1 min. Since the concentration of respirable particles was calculated by dividing the u grams collected by the sampling time (5min. or 9.5L), the actual concentration was necessarily much higher during the 1 min. of exposure during powder application.

In the J&J adult study, the concentration was measured only during the actual powdering application which averaged 1-1/3 min.

The IRI study finds no difference in perfumed vs. unperfumed talcs. Our studies (with V-66 talc only) show a marked reduction in respirable airborne particles when perfume is added.

The lowest mass detectable by AAS is 1 microgram of talc. Therefore the lowest concentration detectable is 0.1 mg/M³ or 1 ugram

$$\frac{1 \text{ ugram}}{9.5 \text{ L (5 min.)}} = 0.1 \text{ u/L} = 0.1 \text{ mg/m}^3.$$

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Results

In the data below, the IRI summary includes all data with Chinese and Italian talc, perfumed and unperfumed. The J&J data used JBP only.

	<u>IRI Study</u>	<u>J&J Study</u>
A) <u>Baby Dusting</u>		
Range mg/M ³	0.1 to 0.90	0.07 to 0.39
Average mg/M ³	0.22	0.21
Subject	Doll	Live Baby
No. of Tests	32	48
B) <u>Adult Dusting</u>		
Range Mg/M ³	0.3 to 2.6	0.12 to 5.10
Average mg/M ³	1.13	1.61
Subject	Adult	Adult JBP Users
No. of Tests	32	20

The IRI study does not give the amount of powder dispensed by the subjects, but from the data, it appears that a lot more was used on the dolls than on the live babies.

I believe the higher results with adults in the J&J study reflect the fact that sample was collected only during powdering (highest exposure). The IRI sampling continued for 5 min. although application time was only around one min.


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