

Interoffice Memorandum

TO (Name and Location)	DATE
O. W. Schnellenberger	12-15-82
FROM (Name and Location)	REFERENCE NO.
N. A. Flaten/J. H. Pritchard <i>Bi</i>	NAF-28/JHP-12-82

MS409 FEEDER CLEANING MONITORING RESULTS

SUMMARY

During production runs on MS409, the feed blend feeder is opened up and cleaned once per shift. This is to prevent a buildup of dust on the feeder belt and scales from causing feeder inaccuracy. Some of the products produced on MS409 contain asbestos and antimony trioxide (Sb_2O_3). At the request of the Operations Department, personnel were monitored to determine if the feeder cleaning poses an asbestos and Sb_2O_3 exposure problem.

The feeder cleaning was monitored twice. The procedure utilizes a portable vacuum cleaner to remove and contain material from the feeder. The results show that none of the exposures exceed the OSHA or Celanese limits. The personal exposures to asbestos ranged from 0.06 to 0.43 fibers/cc versus an OSHA permissible exposure limit of 10.0 fibers/cc STEL. The personal exposures to Sb_2O_3 ranged from 0.002 to 0.007 mg/m³ for an eight hour TWA. The OSHA and Celanese limits for a TWA exposure to Sb_2O_3 are 0.5 and 0.15 mg/m³.

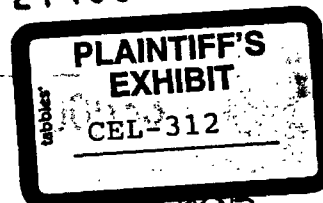
The exposure data and feeder cleaning procedure was reviewed with the SHE Department. It was concluded that the present feeder cleaning procedure which utilizes a vacuum approved for use on asbestos is acceptable. This is consistent with the current Bishop Plant Policy for the Safe Handling and Disposal of Asbestos (Section VII-4). Personnel should continue to follow this policy, particularly the protective equipment requirements, to ensure that exposures to asbestos and Sb_2O_3 are minimized.

Please review the exposure data with the personnel involved and post the data on your bulletin board.

DISCUSSION

During production runs on MS409, the feed blend feeder (MFE-226) must be opened up and cleaned. The feeder must be cleaned because a buildup of dust on the feeder belt and scale cause inaccuracy in feeder performance resulting in 'ash' quality problems. Prior to 1982, the feeder was cleaned only after ash problems arose. Earlier this year, a once per shift cleaning frequency was established to prevent off-specification production due to ash.

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Some of the Celanex products made on MS409 contain asbestos and Sb_2O_3 . The feed blends which pass through the feeder contain approximately 4% asbestos and 5-8% Sb_2O_3 . Because the feeder cleaning has been changed from an infrequent to a once per shift task, there is a higher potential for employee exposure to asbestos and Sb_2O_3 . At the request of O. W. Schnellenberger, personnel were monitored for exposure to asbestos and Sb_2O_3 when cleaning the MS409 feed blend feeder.

On August 30, 1982 and September 21, 1982, personnel and area samples were collected while the feed blend feeder was cleaned. During both clean-up procedures, the Nilfisk vacuum cleaner was used to remove and contain residual material from the feeder. The asbestos and Sb_2O_3 samples were collected and analyzed according to NIOSH method P&CAM 239 and 52. The personnel exposure to asbestos ranged from 0.06 to 0.43 fibers/cc STEL. The personnel exposures to Sb_2O_3 were 0.002 and 0.009 mg/m³ 8hr. TWA. The area samples showed airborne asbestos levels to range from 0.07 to 0.32 fibers/cc and Sb_2O_3 levels to be 0.32 mg/m³ (Table I and II).

None of the exposures exceeded OSHA or Celanese permissible exposure limits. The OSHA short term exposure limit (STEL) for asbestos is 10 fibers/cc. The OSHA limit for Sb_2O_3 is 0.5 mg/m³ for an 8 hr. TWA exposure. Celanese has established an exposure limit of 0.15 mg/m³ 8 hr. TWA for Sb_2O_3 . Neither OSHA or Celanese specifies a STEL for Sb_2O_3 . Samples were taken only while personnel were cleaning the feeder (STEL type samples). Therefore, to make comparisons to the OSHA and Celanese Sb_2O_3 8 hr. TWA limits, 8 hr. TWA exposures were calculated from the short term sample data and the assumption that employees were not exposed to Sb_2O_3 during the rest of the shift. Current monitoring results indicate that this is a valid assumption because all 8 hr. TWA samples collected have been less than 0.07 mg/m³.

It should be noted that all personnel monitored were wearing dust masks and gloves. Therefore, actual concentrations of exposures to these compounds were less than what is shown in Tables I and II.

The exposure data and feeder cleaning procedure was reviewed with the SHE Department. It was concluded that the present feeder cleaning procedure is acceptable. This procedure utilizes a Nilfisk vacuum cleaner which is approved for use with asbestos. The vacuuming technique is the method of choice because exposures were found to be low and had little variability. This procedure is consistent with the current Bishop Plant Policy for the Safe Handling and Disposal of Asbestos (Section VII-4). Personnel should continue to follow this policy. They should also continue to use the 3M 9910 dust mask and other protective equipment as required by the policy.

The feeder cleaning procedure will be monitored periodically to ensure that exposures to asbestos and Sb_2O_3 do not exceed permissible exposure limits.

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CONCLUSIONS AND RECOMMENDATIONS

1. None of the exposures exceed the OSHA or Celanese permissible exposure limits for asbestos and Sb_2O_3 .
2. The present feeder cleaning procedure which utilizes the Nilfisk portable vacuum to clean and contain the residual material from the feeder is acceptable.
3. The cleaning procedure is consistent with the current Bishop Plant Policy for the Safe Handling and Disposal of Asbestos (Section VII-4).
4. Personnel should continue to use the required protective equipment. The SHE Department recommends the 3M 9910 type dust mask.
5. The feeder cleaning procedure will be monitored periodically to ensure that exposures to asbestos and Sb_2O_3 do not exceed permissible exposure limits.

REFERENCES

¹Schnellenberger, O. W., MS383/MS409 Feeder Cleaning, August 31, 1982 (OWS-91-82).

²Barret, C. D., Celanese Policy on Handling Carcinogens, November 15, 1982 (CDB-241-82).

³Monitoring results to be issued when the study is complete.

Nanette Flaten
N. A. Flaten

J. H. Pritchard (one)
J. H. Pritchard

NAF/JHP/lac

cc: R. G. Brandt
E. J. Heinz
R. G. Hilbrich
H. W. Hill
G. Ille
W. H. Meyer
A. B. Milam
D. A. Reck
W. R. Timman
C. A. Amond
S. Gregorcyk
D. L. Wallen
File: 1060.1

C. D. Barrett - Dallas

D. Unrue - Louisville

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TABLE II
MONITORING RESULTS DURING 9-21-82 FEED BLEND FEEDER CLEANING

DATE	SX #	NAME/SS#	SAMPLE DURATION	ASBESTOS ¹ (FIBERS/CC)	ANTHONY TRIOXIDE ² (Mg/H ³)		COMMENTS AND PROTECTIVE EQUIPMENT USED
					STEL	CALCULATED TWA ³	
9-21-82	003179	Tim Burns 268-56-1978	20	0.43	--	--	Cleaned MFE-226 Feed Blend Feeder. Wore dust mask, coveralls, and gloves. Used Nilfisk vacuum.
9-21-82	003181	Area Sample	23	0.15	--	--	Sample collected ~4 ft. from feeder.
9-21-82	003182	Area Sample	23	<0.07	--	--	Sample collected near the Nilfisk vacuum exhaust.
9-21-82	003177	Otto Hoff 464-42-1638	21	--	0.05	0.002	Cleaned and adjusted MFE-226 Feed Blend Feeder. Wore dust mask, coveralls, and gloves. Used Nilfisk vacuum.
9-21-82	003178	Otto Hoff 464-42-1638	7	--	0.50	0.007	Same as above.
9-21-82	003180	Tim Burns 268-56-1978	7	--	0.64	0.009	Same as above.
9-21-82	003183	Area Sample	26	--	0.32	--	Sample collected ~4 ft. from feeder.
OSHA or ACCIH Permissible Exposure Limits				10 fibers/ CC STEL	0.5 mg/m ³ 8 hr. TWA 0.15 mg/m ³ 8 hr. TWA (Celanese)		

¹The samples were collected and analyzed according to NIOSH Method P4CAM239. The analysis was performed by NATIOSCO.
²The samples were collected and analyzed according to NIOSH Method S2.
³The 8 hr. TWAs were calculated using the STEL data and the assumption that employees were not exposed to Sb₂O₃ during the rest of the shift.

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TABLE I

MONITORING RESULTS DURING 8-20-82 FEED BLENDER FEEDER CLEANING

DATE	SX #	NAME/SS#	SAMPLE DURATION	ASBESTOS ¹ (FIBERS/CC)	ANTHONY TRIOXIDE ² (MG/M ³)		COMMENTS AND PROTECTIVE EQUIPMENT USED
					STEL	CALCULATED TWA ³	
8-30-82	003168	Roy Cantu	33	0.10	--	--	Cleaned and adjusted MFE-226 Feed Blend Feeder. Used the Nilfisk vacuum cleaner.
8-30-82	003230	Roy Cantu	24	<0.07	--	--	Same as above.
8-30-82	003169	Manuel Perez, Jr. 463-82-7924	28	0.06	--	--	Same as above. Wore dust mask and gloves.
8-30-82	003231	Manuel Perez, Jr. 463-82-7924	25	0.07	--	--	Same as above.
8-30-82	003170	Area Sample	30	0.17	--	--	Sample collected ~4 ft. from feeder.
8-30-82	003232	Area Sample	31	0.32	--	--	Same as above.
OSHA or ACCIH Permissible Exposure Limits				10 fibers /cc STEL	0.5 mg/m ³ 8 hr. TWA	0.15 mg/m ³ 8 hr. TWA (Celanese)	

¹The samples were collected and analyzed according to NIOSH Method P4CAM239. The analysis was performed by NATLOSCO.

²The samples were collected and analyzed according to NIOSH Method S2.

³The 8 hr. TWAs were calculated using the STEL data and the assumption that employees were not exposed to Sb₂O₃ during the rest of the shift.

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