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# INTRACOMPANY CORRESPONDENCE

2-78 (Rev. 1-68)

PLAINTIFF'S  
EXHIBIT  
RMC-440

FROM: H. M. Cole - GOB

TO: R. H. Featherston - EXO

COPY: R. D. Gamble, M. D., Christine Cline, R. N. - Sherwin;  
J. S. Kinzey, R. B. Newman, R. M. Kibby, J. A. Williams, Drs. MacMill  
& Irby, Ruth Carson - EXO; B. J. Sasser - GOB

DATE &  
SUBJECT: July 9, 1975

I visited the Sherwin Plant recently to map out an Industrial Hygiene sampling program at the request of Mr. G. L. Suffredini. Mr. Suffredini asked that I re-write the September 16, 1974 Industrial Hygiene Report of the Sherwin Plant so that comparisons can be made with MESA safety standards. Enclosed is a copy of that report.

Thank you.

*Homer M. Cole*

H. M. Cole

HMC/mfj

Enclosure

TX TINNER  
RMC0042387

# INTRACOMPANY CORRESPONDENCE

|                 |                                                                                                                                                                                                                     |
|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TO:             | H. M. Cole - GOB                                                                                                                                                                                                    |
| FROM:           | G. L. Suffredini - Sherwin                                                                                                                                                                                          |
| COPY:           | C. C. Craig, H. R. Bratt, M.D., Christine Cline, R.N. - Sherwin;<br>R. H. Featherston, J. S. Kinzey, R. B. Newman, Drs. MacMillan & Irby,<br>Ruth Carson, R.N., R. M. Kibby, J. A. Williams - EXO; B.J. Sasser, GOF |
| DATE & SUBJECT: | July 26, 1974<br>INDUSTRIAL HYGIENE SURVEY<br>SHERWIN ALUMINA PLANT - MARCH 24 - 29, 1974                                                                                                                           |

At the request of plant management, an Industrial Hygiene Survey was made of the Sherwin Alumina Plant March 24 - 29, 1974. Following are the results of that survey:

- ITEM 1 - Asbestos - Asbestos samples collected during the demolition of insulating material from several reactor vessels indicate compliance with present MESA guidelines. See discussion.
- ITEM 2 - Total Airborne Dust - Results of total airborne dust samples collected in the bauxite transfer tunnels and at alumina loading and unloading operations indicate non compliance with MESA regulations. Although a good respiratory protection program is in effect in most areas much needs to be done with regard to the engineering aspects of the problem.
- ITEM 3 - Solvent Vapors - Samples to determine solvent exposure collected in the electrical shop at the motor dip tank operation and while cleaning oil bulbs throughout the plant indicate compliance with MESA guidelines in all areas tested.
- ITEM 4 - Sodium Hydroxide - Samples to determine caustic exposure were collected in the hydrate filtration area (Fac. 46), at the SOP filters (Fac. 35), on top of the percipitators (Fac. 45) and in the recovery area (Fac. 230). Results indicate compliance in all areas tested.
- ITEM 5 - Noise - Noise measurements were made in the power department (areas 110 and 111), on the Kiln Floor (calcining area) and while scaling reactor vessels. Results indicate that hearing protection is necessary and should be required in all scaling operations.
- ITEM 6 - Materials Screening Program - In order that the Medical Department might better evaluate the hazard potential of many chemicals used in our plant locations, it has become necessary for us to implement a materials screening and evaluation program for new chemicals as they are introduced. In order that we might achieve this purpose, I will be in contact with the Purchasing Agent at your plant in hopes of setting up a procedure to obtain this information.

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Not yet  
using  
supplied  
air resp.  
for Ash.  
up out

educ. wkrs.

more A exp.  
jobs to (monitor)  
sample

Ref - Pg. 2

## DISCUSSION

### ITEM 1:

Samples were collected for airborne asbestos while removing asbestos insulation from several reactor vessels. Results appear in Table 1.

Samples collected while removing asbestos insulation from reactor vessels indicate compliance with present MESA guidelines. A review of Table 1 indicates that several samples were above the 5 fiber per millileter standard, however, when exposures are considered on a time weighted basis these values would be significantly lower and within MESA guidelines. It should also be noted that employees involved in the removal of asbestos during this sampling, were wearing MSA Dust Foe 66 Respirators which have Bureau of Mines approval (No. 21B-113) for protection against asbestos and other pneumoconeosis producing dust. Therefore, this respirator afforded the workers involved with adequate respiratory protection during the sampling and demolition period. MESA regulations indicate that respirators shall not be substituted for environmental control measures. However, when environmental controls have not been developed or when necessary by the nature of the work (demolition of asbestos containing materials in this case) an employee may work for a reasonable length of time in concentrations of airborne contaminants above prescribed limits. It was also indicated to me at the time of this survey, that the plant has on order continuous flow or pressure demand Type C supplied respirators and special protective clothing to be worn by employees engaged in these operations. I would suggest that we go ahead and implement those programs regarding asbestos exposure which we had outlined at an earlier date. Although MESA regulations are not as strict as OSHA guidelines on this matter, we at Reynolds recognize the importance of and concern which should be afforded the asbestos problem.

I might also add that all spraying of asbestos insulations has been discontinued and substitute materials are presently being used and evaluated for performance.

In the future we need to improve on and implement our established procedures for handling asbestos containing materials and be sure that they are put into practice. This, of course, requires an education program on the part of everyone, "supervisors, as well as hourly workers". Future environmental monitoring should be carried out on at least an annual basis. The following job categories should be sampled at that time:

- (1) Carpenters removing scaffolding after asbestos demolition.

ITEM 1 (continued)

- (2) Iron workers welding studs onto digester vessels in preparation for new insulation.
- (3) Employees or areas down wind from where asbestos insulation is being removed.
- (4) Employees involved in the installation of preformed asbestos pipe covering.
- (5) Monitoring should also be accomplished on any other job category where an exposure to asbestos exists.

I should also like to emphasize that a comprehensive medical examination should be provided to employees involved in all operations where there is an asbestos exposure. While this is not a MESA requirement, it is a well established policy within Reynolds Metals Company. We at Reynolds are always concerned about the health and well being of each of our employees.

ITEM 2

Total airborne dust samples were collected throughout the plant. Results appear in Table 2.

Samples for total airborne dust were collected for each job category which involved either bauxite or alumina loading, unloading or transfer. Samples were collected by the personal sampling technique as set forth by NIOSH and OSHA in an attempt to better categorize employee exposure for each job classification. Personal monitors were worn by employees during their actual work. Samplers were worn for up to 4 hours in an attempt to gain a representative sample. Results are reported in Table 2 as actual exposures obtained during the sampling cycle and as time weighted average exposures extrapolated to eight hours.

Facilities 5 and 24 - Results of samples collected in the bauxite unloading and transfer operations indicate non-compliance with MESA nuisance dust standards. I realize that you have an effective respiratory protection program and employees were wearing approved Bureau of Mines respirators during my visit. However, this method of control of a hazard is considered a temporary means of control.

In light of this fact, we need to develop documentation that we are looking into the feasibility of controlling this potential problem. If process changes or work schedules were altered at any time in the past which relate to a lowering of dust exposures, this information should be extracted from past records and brought up to date. In addition, any proposed engineering changes that might bring about a similar reduction should also be documented. In general, exposures of this nature up to 12 times the Threshold Limit Value, would result in a very strong notice from MESA authorities.

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ITEM 2 (continued)

The fact that respirators are being worn would of course help, but the outcome would depend on the judgement of the Industrial Hygienist involved.

Also, I had two samples of airborne bauxite dust run for free silica (crystalline) determinations. These samples were processed by two outside independent laboratories and results indicate a range of <0.4%-5% free silica in total dust. I have discussed this possibility with several people within the company and the feeling is that anything about 1% free silica in Jamacian Bauxite would be considered quite high. As a result of these discussions I would tend to question the reliability of results of greater than 1-2% free silica. However, it should be pointed out that similar analysis from other independent labs might turn up comparable results. The analytical method for determining free silica is quite tedious and results are often scattered. To better determine our position in this matter, I suggest that the plant periodically collect air samples (by personal sampling method) and process them for free silica. After we establish that we do not in fact have a problem, we then have available the information to protect ourselves when such time comes.

Also, I think that the information collected here on our bauxite handling operation is typical of information that we might expect to collect at a later date. Annual sampling in this area would be most helpful. Also, we should concern ourselves with collecting respirable dust samples in the future. This procedure will allow us to separate the respirable dust from the total dust exposure and hopefully, provide us with additional information that will allow us to better determine the extent of the problem (if at all).

Facility 90 - Results of samples collected in facility 90, involving the unloading of alumina from railroad cars and the subsequent transfer and loading of this material into barges and other vessels indicate non-compliance with MESA guidelines. There is no standard at this point for Aluminum Oxide and it is therefore treated as a nuisance dust. However, more recent information implicates  $Al_2O_3$  as having fibrogenic properties. A recent updating of Aluminum In The Environment and Human Health, University of Cincinnati, incorporates several references on this subject. In light of this material it would be appropriate for us to get our house in order prior to new standards being developed. In the future, we should sample this facility routinely using respirable sampling equipment to better determine the extent of the respiratory hazard associated with this operation.

Also, if there have been any process or administrative changes in this operation in the past or if engineering changes are planned that would reduce the above mentioned employee exposure, then such information should be made available and appropriate records kept.

Facility 51 - Alumina Loading. Statements regarding the health related aspects of the Alumina exposure problem also apply to this facility, however, additional comments should be made regarding this operation.

It is my feeling that exposure to aluminum oxide at this operation is overly excessive and should not be allowed from a health or safety point of view. I found it difficult to see, much less to walk on top of open hopper cars during my visit.

### ITEM 3

Solvent Vapors - Results of solvent vapor samples collected in the electrical shop and while cleaning oil bulbs in the field appear in Table 3. All measurements indicate compliance with MESA regulations and should not pose any health related problem.

### ITEM 4

Sodium Hydroxide - Samples to determine caustic exposure were collected throughout the plant. Results appear in Tabel 4.

Personal samples were collected throughout the plant to determine sodium hydroxide exposure. Samples were collected on fiber glass filters wetted with deionized water and analyzed for both sodium hydroxide and sodium carbonate. Results of both analysis were combined and all results appear as sodium hydroxide. Results are somewhat lower than expected but in light of a lack of clinical manifestations of sodium hydroxide exposure the data appears in order.

### ITEM 5

Noise - Noise measurements were taken in all areas of the plant suspected of a noise exposure problem. Results appear in Table 5.

Noise exposure determinations were made throughout the plant using DuPont Audio Dosimeters which integrate the workers exposure over the entire work shift. Results indicate compliance in all areas

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tested except the scaling operations. It should be pointed out that scaler operators were wearing hearing protection during the sampling. However, it is difficult to determine the extent of exposure for this job category in that different tanks will require varying times to complete a job. Hearing protection should always be worn during this operation and employees should be followed very closely by our Medical Department to insure that employees hearing is being monitored. Your plant has done an excellent job taking care of noise related exposures in the past and I'm sure that that performance will continue.

ITEM 6

Materials Screening Program - The Medical Department is in the process of up-dating its records concerning the raw materials used at each of our plant locations. The Threshold Limit Value Committee is quite active developing and setting and updating standards for many of these materials. There have been occasions in the past where chemical substances have created considerable problem without prior opportunity by the Medical Department to evaluate the hazard potential. As a result, it has become necessary for us to reevaluate many of the materials in use and implement a materials screening program for new chemicals as they are introduced. In order that we might accomplish this purpose, as well as eventually complying with other Federal Regulations, I would like your support in collecting this information.

For example, information that would be most helpful at your plant would have to do with the different kinds of protective coatings and their make up.

In order that we might accomplish this purpose, it is requested that each of your purchasing agents send out a copy of the enclosed letter with attached Material Safety Data Sheet in order that we might begin developing this list. Whenever possible the amount of material that is purchased for a given location should be noted.

In summary, I would like to thank you for your help and the consideration given to me during my trip to Corpus. If I can be of any further help or answer any questions, please don't hesitate to call on me. Thank you.

  
Homer M. Cole

HMC/mfj  
Enclosures

TX TINER  
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TABLE 1  
SHERWIN ALUMINA PLANT  
ASBESTOS SAMPLING STUDY  
FEBRUARY 19, 1974

| <u>Sample No. and</u><br><u>Description</u>                                                             | <u>Fibers/Milliliter</u><br><u>of Air*</u> |
|---------------------------------------------------------------------------------------------------------|--------------------------------------------|
| SH-1 W. Enriquez, Service Repairman (Knocking<br>of asbestos from digester tank)<br>(1:30 pm - 1:42 pm) | 0.92                                       |
| SH-2 L. Cadriel, Service Repairman (Service<br>Repair), (1:30 pm - 1:42 pm)                             | 3.18                                       |
| SH-3 W. Enriquez, Service Repairman (Clean up<br>of asbestos), (1:45 pm - 1:59 pm)                      | 10.25                                      |
| SH-4 L. Cadriel, Service Repairman (Clean up<br>of asbestos), (1:45 pm - 1:59 pm)                       | 2.73                                       |
| SH-5 W. Enriquez, Service Repairman (Clean up)<br>(2:00 pm - 2:20 pm)                                   | 16.73                                      |
| SH-6 L. Cadriel, (Clean up)<br>(2:00 pm - 2:20 pm)                                                      | 5.65                                       |
| SH-7 W. Enriquez, Service Repairman (Clean up)<br>(2:40 pm - 2:50 pm)                                   | 3.31                                       |
| SH-8 L. Cadriel, (Clean up)<br>(2:40 pm - 2:50 pm)                                                      | 1.50                                       |
| SH-9 BLANK                                                                                              |                                            |

\* Threshold Limit Value for asbestos fiber - 5 fibers/milliliter of air sampled eight-hour time-weighted average.