

For Inter-Organization Letters of
FRIGIDAIRE DIVISION
 GENERAL MOTORS CORPORATION

PLAINTIFF'S
 EXHIBIT
 BRK-79

DEPARTMENT SAFETY

June 3, 1944

Mr. Ray Walton, Supervisor
 Department #711

re: Employee grievance #10714, by Basil Pearson, 711B-032 relative to dust conditions in blade grinding, Plant #2. Filed June 2, 1944.

On May 25 Mr. J. S. Brown, Mfg. Process, Plant #2 called my attention to general complaints in regards to dust plugging the screens placed over the exhaust vents on a good many of the blade benches in Department #711. These screens are one inch mesh and are installed in a fixed position over the entrance to the exhaust slot in such a manner that it is very difficult to remove coarse aluminum grindings from behind them and in front of the vents. The screens were installed in answer to a request of the fire insurance underwriters to prevent oily rags, paper and pieces of steel from entering the exhaust system and causing fire damage.

Several dust determinations were made prior to the filing of grievance #10714 and are included in the data below. Two counts were made on the job of Pearson, 711B-032, to show the effect of stoppage of exhaust ventilation. Dust counts were also made on polishing operations in this area. Operators remarked that their hoods did not plug like the grinding hoods, but that paraffin wax did collect on the hoods at the vents and should be cleaned frequently. One count was made on the job of A. Schuh, 711B-215, when the Dracco system was down for repairs. This high count shows that dust protection should be provided when it is necessary to shut down the dust collectors.

Scabbing operation with #16 emery grit on camber side of H. S. blade.
Air samples taken in breathing zone.

<u>Employee</u>	<u>Bench</u>	<u>Post</u>	<u>Blade</u>	<u>Vent condition</u>	<u>Disc</u>	<u>Dust particles per cubic foot of air.</u>
B. Pearson 711B-032	118	K-85	E	Plugged except for 20 inches from shank end	#16	3,000,000
"	"	"	"	Cleaned	"	1,530,000
J. Cook 711B-163	66	I-87	F	5/8 ths plugged	"	5,110,000
"	"	"		Cleaned	"	1,024,000

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<u>Employee</u>	<u>Bench</u>	<u>Post</u>	<u>Blace</u>	<u>Vent condition</u>	<u>Disc</u>	<u>Dust particles per cubic foot of air</u>
Roy Small 711B-028	84	J-85	E	5/8ths plugged	#16	3,240,000
"	"	"4	"	Cleaned	"	3,010,000

Note: In the case of Small there was a steady strong current of air blowing across his work position from the rear.

The following polish operations were also checked. These benches were not plugged because of the finer dust.

W. Richards 711B-220	119	K-84	E	Opened	#80	3,920,000
"	"	"	"	"	#120	2,200,000
A. Schuh 711B-215	202	J-78	F	Blower shut down	#120 old	34,700,000
"	60	I-63	"	Opened	#50	3,600,000
"	"	"	"	"	#80	2,350,000
"	"	"	"	"	#120	4,100,000

Aluminum dust is considered non-toxic to the human lungs. Authorization for this statement is based upon findings of J. L. Blaisdell, M.D. and others working on the prevention of silicosis in London, Ontario in Canada. Their work has proven aluminum dust harmless to the lungs and a definite benefit in prevention of silicosis, a lung disease caused only by free silica dust (SiO_2). Further fact regarding the harmless nature of aluminum is shown by the use of aluminum oxide and other aluminum salts in a great many stomach medicines. Frigidaire Dust Policy has included limits of 5,000,000 particles of dust per cubic foot of air. This limit is considered safe by the Industrial Hygiene Engineer of the Ohio Industrial Commission.

Several operators have complained to me, while taking dust counts, that the "trench" or exhaust slot in the rear of the bench is too narrow to allow large masses of aluminum to pass. These exhaust slots are designed to give an even distribution of exhaust air flow over the full length of the slot and at a definite rate of speed. They can not be widened without sacrificing the air speed and thus the amount of dust particles that will be drawn down from the grinding operation. These vents were not designed to trap all of the grinding dust, but were set up to keep a steady flow of air across the operator's breathing zone and thus clear the fine dust from the air. Many previous air analyses have shown the Frigidaire dust limit of 5 million particles per cubic foot of air to be satisfactory for Department 711, blade grinding.

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I found it true that screens placed over the exhaust vents make it very difficult to clean the benches. As much as 15 or 20 minutes time was required to clean some of the badly plugged screens. The men used files and hammers to loosen the "balled" aluminum. I also noted that men were hammering on the backs of the hoods. This will in time bend the slots out of shape.

An investigation into the reasoning behind the placing of screens over the exhaust vents on these blade benches has revealed that this was recommended by the Western Factory Fire Insurance Company, underwriters for Frigidaire Division. Inasmuch as the Fire Insurance Company has demanded that we install screens on these benches, very little can be done toward removing them without the insurance company's permission. Saturday noon a meeting with Messrs Trottman, Brown, Pantz, G. Fischer, Deeter and myself, was held and the matter of either removing the screens or putting hinges on them was discussed. It was decided that the Insurance company be contacted at once regarding the problem of bench cleaning and dust removal for their decision in these matters. Meanwhile, the Process Department is obtaining estimates on the cost of putting hinges on the screens.

In summary the above dust counts on benches where scabbing operations are performed, do not show health hazards, but rather that the problem of removing dust from benches and screens presents a time loss, as well as dissatisfaction among operators. These exhaust systems likewise provide air changes in the operator's working position and thus enable the operator to remain reasonably comfortable. In this manner air flow through the exhaust vents cuts down the number of cases of heat rash.

H. S. Kline

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Industrial Hygiene Lab.

c.c. Messrs M. M. Shafer, M.D.
B. T. Trottman
H. E. Huges
T. L. Pantz
G. H. Fischer
C. R. Deeter
H. D. Pine
R. L. Douglas
J. S. Brown
R. F. Zimmerman

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DEPARTMENT SAFETY

May 22, 1944

Dr. W. M. Shafer

re: Dust counts on Blade buffing and polishing operations, Dept. 711,
Plant #2.

According to Mr. Rhodes, Mfg. Process Department, baffles have been removed from Buffing and polishing hoods in Department #711, Plant #2. He stated that a complaint had been received as a result of this action and suggested that dust counts be made to determine whether or not the baffle should be replaced.

On May 16, four dust counts were made in this department. The operator on Bench #172, was checked on both the polishing and buffing operations. This bench is located near Post J-96. The dust count showed 5,300,000 particles per cubic foot of air in the breathing zone while the operator polished for four minutes, and 8,260,000 particles while he buffed for $1\frac{1}{2}$ minutes. A second operator on bench #184 near Post L-95 was also checked. The dust counts in his breathing zone showed 2,300,000 particles per cubic foot of air on the polish operation which required two minutes and 3,540,000 particles for a $1-1/3$ minute buffing operation.

Inasmuch as one set of results is above Frigidaire's dust limits we plan to make further study of this department in the near future before any action is taken on a decision regarding the hood baffle.

H. S. Kline
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Ind. Hygiene Lab.

c.c. Messrs B. Trottman
R. Zimmerman
R. Walton
J. Brown

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March 23, 1944

Mr. B. T. Trottman
 Mfg. Process
 Plant #2

re: Dust counts in Dept. #711, Blade Grinding with and without hood baffle.

At the request of Mr. Rhodes, dust counts were taken in the breathing zones of several blade grinding operators with the baffles both in and out of the hoods. In addition to the experimental tests several other counts were made with baffles in, so that we could obtain a general idea of dust conditions. All determinations were made in the Camber Grinding Section.

<u>Date</u>	<u>Post</u>	<u>Bench</u>	<u>Baffle</u>	<u>Disc</u>	<u>Dust per cubic foot of air</u>
3-18	K-80	HP-12754	In	120	22,900,000
	K-80	12754	Out	120	5,360,000
3-20	J-80	1839	In	50 & 120	1,381,000
	J-82	6119	In	120	975,000
	K-82	6144	In	16	350,000
	K-83	6146	In	16	1,222,000
3-21	J-80	2770	In	16	5,400,000
	J-80	2770	Out	16	4,620,000
	K-80	12754	In	120	8,880,000
	K-80	12754	Out	120	3,930,000

The above results show that apparently the baffle in these hoods is not necessary, at least with the new one inch screen placed across the vent. We noticed that with the combination of screen and baffle that there was a tendency toward plugging of the vents. We will be glad to assist in making further checks of dust conditions if you desire them.

H. S. Kline

H. S. Kline, Ch. E.
 Ind. Hygiene Lab.

c.c. DR. M. M. Shafer
 R. Walton
 C. Harris
 R. Zimmerman