

PB90180688

NOTE: TRADE SECRET DATA HAVE BEEN REMOVED FROM THIS REPORT.

NATIONAL OCCUPATIONAL HEALTH SURVEY OF MINING

PIGMENT MINERALS REPORT

OCTOBER 4, 1989

COMMENTS SHOULD BE DIRECTED TO

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NATIONAL OCCUPATIONAL HEALTH SURVEY OF MINING
NIOSH
DIVISION OF RESPIRATORY DISEASE STUDIES
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INTRODUCTION

This is one of a series of reports on the National Occupational Health Survey of Mining (NOHSM), which is being carried out by the National Institute for Occupational Safety and Health (NIOSH). This particular report provides NOHSM data for the Pigment Minerals commodity, which was surveyed during January, 1988. One Pigment Minerals facility was surveyed; that was the only active operation listed by MSHA when the sample was drawn. The NOHSM began in May, 1984, as an effort by NIOSH to obtain representative data related to occupational health from the mining industry. The data collected were similar to the information previously obtained in non-mining studies. Specifically, NOHSM data include:

- a. Occupational health program and policy information;
- b. An inventory of all health-related substances found on mine property; and
- c. A series of worksite observations which detail potential exposure to chemical and physical agents.

These data were collected by surveyors who traveled to each mine site. The survey sites were chosen so as to provide a statistically valid representation of each commodity at the time of the NOHSM sample selection. With this representative sample, NIOSH can project survey data to the entire mining industry.

The NOHSM is being carried out primarily as a service to the Mine Safety and Health Administration (MSHA), and secondarily as a source of information for NIOSH investigators and other interested parties. MSHA plans to use the data for three purposes:

1. To set regulatory priorities and write improved health standards;
2. To improve compliance with existing standards; and
3. To identify and determine research needs and priorities.

This transfer of information to MSHA is mandated by Section 201 of the 1977 Federal Mine Safety and Health Amendments Act.

This report identifies potential exposures and provides the associated numbers of workers, the occupations of those workers, and the locations on the mine property where the potential exposures were observed. This information is categorized into seven tables: four concerning chemical agents; one concerning musculoskeletal overload conditions; one concerning physical exposure conditions; and one concerning welding processes. Estimated annual usage information is provided for chemical substances, both generic and tradenames.

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For the Pigment Minerals commodity, no chemicals were found for Tables 1, 2, and 3. Table 4 lists 33 tradename products to which workers in the commodity were found to be potentially exposed. Table 5 describes potential exposures to the following three physical agents: noise; whole-body vibration; and process-related temperature. Table 6 lists potential exposures to the following five musculoskeletal conditions: heavy lifting; neck and/or back movement; wrist movement; lower limb movement; and finger and hand movement. Table 7 indicates the two welding processes: shield metal arc welding and oxyfuel gas cutting, which were observed to be used in the Pigment Minerals commodity.

It is extremely important that the limitations of the reported data be recognized. The data do not in any way document exposures or exposure levels. The data only indicate potential exposures. The term "potential exposure" means the agent was observed to be present at one or more worksites in such a way that there was a possibility of workers being exposed to the agent.

Likewise, the usage data presented in some of the tables are only a guide to the projected magnitude of usage and should not be taken as precise information. The usage data are based on estimates provided by mine management. It is expected that these estimates have widely varying accuracy. Occasionally, an item may be represented as having an annual usage of zero with workers observed to be potentially exposed. This may occur because annual usage estimates are generally based on purchases of the 12 months immediately preceding a survey. Therefore, items purchased prior to that 12 month period may be represented as having a zero annual usage rate even though potential exposures were observed during the survey. Other zero annual usage occurrences could involve recyclable items such as some catalysts and desiccants, items such as paints and coatings which are applied prior to the 12 month period but which are present in the workplace in such a way as to present a potential exposure, and obsolete items which are no longer actively used on the property but to which employees could still be potentially exposed in the course of their work. Furthermore, all the estimates were rounded to the nearest whole number, with all quantities between 0 and 1 being reported as 1. Thus, extremely small usage levels may actually be lower than estimated. With this possible exception, NIOSH believes the relative magnitude to be appropriately represented.

Another limitation to be observed is the terminology associated with the commodity, occupation, and location. These terms were adapted directly from MSHA information and applied by NIOSH. NIOSH recognizes that other

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parties may prefer other commodity, occupation, or location terminology. The MSHA terms were used because of MSHA's close interest in the data.

A separate report will be prepared for each commodity surveyed as a part of the NOHSM. During each segment of the NOHSM, approximately 150 mining operations were surveyed as the sample from a number of selected commodities. A different set of commodities was surveyed during each segment. NIOSH plans for use of these data in the future include:

- a. Encourage MSHA use of the data, as outlined above;
- b. Determine the ranges of exposure to various agents, as required by Section 201 of the 1977 Federal Mine Safety and Health Amendments Act;
- c. Assist in setting priorities for mine-related occupational health research; and
- d. Respond to questions from other parties regarding occupational health aspects of the mining industry.

Information beyond that presented in this report has been collected during the NOHSM. All of the information not protected by trade secret claims is available to the public upon detailed written request. Other categories of available information include:

- a. Management policies related to occupational health;
- b. Duration of potential exposures;
- c. Operations associated with potential exposures;
- d. Controls employed with potential exposures; and
- e. Results of bulk dust analyses for silica, metals, and fibers.

Interested parties should direct their requests to:

Project Officer
National Occupational Health Survey of Mining
NIOSH
Division of Respiratory Disease Studies
944 Chestnut Ridge Road, Room 140
Morgantown, WV 26505-2888

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TABLE DEFINITIONS

<u>AGENT NAME</u>	(1)	(2)		(3)	(4)	(5)	(6)
	# WORKERS	# WORKERS		% WORKERS	PREDICTED	OCCUPATIONS	LOCATIONS
	POTENTIALLY EXPOSED (OBSERVED)	POTENTIALLY EXPOSED (PREDICTED)	(PREDICTED)				

Column (1) represents the total number of workers in occupations within this commodity in which a potential exposure to an agent was observed or identified through questioning of mine management or workers. This number only includes workers from the NOHSM sample sites. A "potential exposure" means the agent was observed to be present at the worksite in such a way that there was a possibility of workers being exposed to the agent. The potential exposures do not imply any exposure level, nor do they imply the absence or presence of controls.

Column (2) represents the number of workers within this commodity predicted to be potentially exposed to each agent. This number reflects a projection to this entire commodity, based on data obtained at NOHSM sample sites.

Column (3) represents the percentage of workers within this commodity predicted to be potentially exposed to each agent. Column (3) is obtained by dividing column (2) by the projected total population of workers in the commodity.

Column (4) represents the number of gallons (GAL) or the number of pounds (LBS) of each chemical that NIOSH has estimated to be used per year. This number is obtained from projections based on estimates of usage provided by mine management, and should only be used in determining the order of magnitude of usage. It should not be used as a precise figure. This number reflects a projection to this entire commodity, based on data obtained at NOHSM sample sites. In some cases, where usage data was unavailable, a "*" appears in this column.

Column (5) contains the occupations observed to have a potential for exposure to this agent. In each occupation, the percentage of workers with a potential for exposure to the agent is given in parentheses. This number only includes data obtained at NOHSM sample sites.

Column (6) contains the locations where workers were observed to have a potential for exposure to this agent at the NOHSM sample sites. The percentage of workers in each listed location with a potential exposure to the agent is given in parentheses. This number only includes data obtained at NOHSM sample sites.

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TABLE 1, PAGE 1

NOTE: THIS TABLE DOES NOT CONTAIN DATA CLAIMED
TO BE TRADE SECRET.

MSHA REGULATED CHEMICALS FOUND ON MINE PROPERTY

COMMODITY NAME: PIGMENT MINERALS

CHEMICAL NAME	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) PREDICTED ANNUAL USAGE
	-----	-----	-----	-----

NO DATA FOR THIS TABLE IN THIS COMMODITY

RUN DATE: 09/20/89

TABLE 2, PAGE 1

NOTE: THIS TABLE DOES NOT CONTAIN DATA CLAIMED
TO BE TRADE SECRET.

CHEMICALS FOUND ON MINE PROPERTY THAT HAVE A NIOSH RECOMMENDED EXPOSURE LIMIT BUT ARE NOT REGULATED BY MSHA

COMMODITY NAME: PIGMENT MINERALS

CHEMICAL NAME	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) PREDICTED ANNUAL USAGE
	-----	-----	-----	-----

NO DATA FOR THIS TABLE IN THIS COMMODITY

RUN DATE: 09/20/89

TABLE 3, PAGE 1

NOTE: THIS TABLE DOES NOT CONTAIN DATA CLAIMED
TO BE TRADE SECRET.

CHEMICALS FOUND ON MINE PROPERTY THAT HAVE NO NIOSH RECOMMENDATION OR MSHA EXPOSURE LIMIT

COMMODITY NAME: PIGMENT MINERALS

CHEMICAL NAME	(1)	(2)	(3)	(4)
	#WORKERS POTENTIALLY EXPOSED (OBSERVED)	#WORKERS POTENTIALLY EXPOSED (PREDICTED)	%WORKERS POTENTIALLY EXPOSED (PREDICTED)	PREDICTED ANNUAL USAGE

NO DATA FOR THIS TABLE IN THIS COMMODITY

RUN DATE: 09/20/89

TABLE 4, PAGE 1 NOTE: TRADE SECRET DATA HAVE BEEN EXCLUDED FROM THIS TABLE.

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: PIGMENT MINERALS

MANUFACTURE'S NAME AND TRADENAME PRODUCTS	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) PREDICTED ANNUAL USAGE	(6) LOCATIONS
DIAGRAPH CORPORATION					
DIAGRAPH STENCIL SYSTEMS INK, R-1 BLACK	2	2	7	4 GALS.	
OCCUPATIONS					
674 WAREHOUSEMAN; SUPPLY HANDLER (100%)					009 SURFACE MISC (33%)

ENGELHARD CORPORATION / SPECIALTY CHEMICALS DIVISION

ASP-600 KAOLIN	27	27	93	600,000 LBS.	
OCCUPATIONS					
279 HAMMER MILL OPTR (100%)					007 SURFACE GRINDING (55%)
649 ADMN. SUPERVISORY, MGT PERSNL (75%)					009 SURFACE MISC (100%)
879 BAGGING OR PACKING WRKR (100%)					010 SURFACE MILL (75%)

GEORGIA KAOLIN CO., INC.

HYDRITE R	27	27	93	80,000 LBS.	
OCCUPATIONS					
279 HAMMER MILL OPTR (100%)					007 SURFACE GRINDING (55%)
649 ADMN. SUPERVISORY, MGT PERSNL (75%)					009 SURFACE MISC (100%)

(CONTINUED NEXT PAGE)

RUN DATE: 09/20/89

TABLE 4, PAGE 2 NOTE: TRADE SECRET DATA HAVE BEEN EXCLUDED FROM THIS TABLE.

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: PIGMENT MINERALS

MANUFACTURE'S NAME AND TRADENAME PRODUCTS	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) PREDICTED ANNUAL USAGE	(6) LOCATIONS
HYDRITE R (CONTINUED)	27	27	93	80,000 LBS.	010 SURFACE MILL (75%)
OCCUPATIONS					
879 BAGGING OR PACKING WRKR (100%)					

GLIDDEN COMPANY

GLIDDEN RUST MASTER ENAMEL, 12 29 FLAT WHITE (AEROSOL)	2	2	7	34 LBS.	
OCCUPATIONS					
674 WAREHOUSEMAN; SUPPLY HANDLER (100%)					009 SURFACE MISC (33%)

GO-JO INDUSTRIES, INC.

GO-JO HEAVY DUTY HAND CLEANER, CREME TYPE, ORIGINAL FORMULA	20	20	69	162 LBS.	
OCCUPATIONS					
279 HAMMER MILL OPTR (100%) 879 BAGGING OR PACKING WRKR (100%)			604 MECHANIC (100%)		007 SURFACE GRINDING (55%) 005 SURFACE SHOP (40%) 010 SURFACE MILL (60%)

RUN DATE: 09/20/89

TABLE 4, PAGE 3 NOTE: TRADE SECRET DATA HAVE BEEN EXCLUDED FROM THIS TABLE.

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: PIGMENT MINERALS

MANUFACTURE'S NAME AND TRADENAME PRODUCTS	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) PREDICTED ANNUAL USAGE	(6) LOCATIONS
HI-TEC INDUSTRIES					
HI-TEC 100% RTV SILICONE RUBBER ADHESIVE SEALANT	2	2	7	24 GALS.	005 SURFACE SHOP (40%) 007 SURFACE GRINDING (18%) 010 SURFACE MILL (10%)
OCCUPATIONS					
604 MECHANIC (100%)					

LINCOLN ELECTRIC COMPANY

JETWELD LH-70 ELECTRODES	2	2	7	270 LBS.	(6) LOCATIONS
OCCUPATIONS					
604 MECHANIC (100%)					005 SURFACE SHOP (40%) 007 SURFACE GRINDING (18%) 010 SURFACE MILL (10%)

MARSH STENCIL MACHINE CO.

MARSH SPRAY MARK OVER, AN-11 T AN1 (AEROSOL)	2	2	7	81 LBS.	(6) LOCATIONS
OCCUPATIONS					
674 WAREHOUSEMAN; SUPPLY HANDLER (100%)					009 SURFACE MISC (33%)

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TABLE 4, PAGE 4 NOTE: TRADE SECRET DATA HAVE BEEN EXCLUDED FROM THIS TABLE.

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: PIGMENT MINERALS

MANUFACTURE'S NAME AND TRADENAME PRODUCTS	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) PREDICTED ANNUAL USAGE	(6) LOCATIONS
MOBIL OIL CORPORATION					
MOBIL DELVAC 1200 SUPER 15W-40 MOTOR OIL	3	3	10	600 GALS.	005 SURFACE SHOP (40%) 004 SURFACE MINE (100%)
OCCUPATIONS					
604 MECHANIC (100%)		649 ADMN, SUPERVISORY, MGT PERSNL (25%)			
MOBIL PREMIUM LUBRICATING GREASE, MOBILGREASE SPECIAL	23	23	79	394 LBS.	
OCCUPATIONS					
279 HAMMER MILL OPTR (100%) 604 MECHANIC (100%)		379 DRYER OPTR; KILN OPTR (100%) 879 BAGGING OR PACKING WRKR (100%)			005 SURFACE SHOP (40%) 007 SURFACE GRINDING (73%) 010 SURFACE MILL (85%)
MOBILUBE 85W-140	1	1	3	600 LBS.	
OCCUPATIONS					
649 ADMN, SUPERVISORY, MGT PERSNL (25%)					004 SURFACE MINE (100%)

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TABLE 4, PAGE 5 NOTE: TRADE SECRET DATA HAVE BEEN EXCLUDED FROM THIS TABLE.

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: PIGMENT MINERALS

MANUFACTURE'S NAME AND TRADENAME PRODUCTS	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)			(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)		(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)		(4) PREDICTED ANNUAL USAGE		(6) LOCATIONS
	3	3	3	3	3	10	10	330 GALS.		
VACTRA OIL, HEAVY MEDIUM										
OCCUPATIONS										
604 MECHANIC (100%)							649 ADMN, SUPERVISORY, MGT PERSNL (25%)			005 SURFACE SHOP (40%) 004 SURFACE MINE (100%)

MOLTAN CO.

MOLTAN SAFETY ABSORBENT	2	2	7	1,200 LBS.	
OCCUPATIONS					
604 MECHANIC (100%)					005 SURFACE SHOP (40%)

NEW RIVER OILS, INC.

MOBIL DIESEL #2	9	9	31	16,600 GALS.	
OCCUPATIONS					
379 DRYER OPTR; KILN OPTR (100%)					004 SURFACE MINE (100%)
649 ADMN, SUPERVISORY, MGT PERSNL (100%)					005 SURFACE SHOP (100%) 010 SURFACE MILL (40%)

NOTE: TRADE SECRET DATA HAVE BEEN EXCLUDED FROM THIS TABLE.

COMMODITY NAME: PIGMENT MINERALS

MANUFACTURE'S NAME AND TRADENAME PRODUCTS	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) PREDICTED ANNUAL USAGE
REGULAR GASOLINE	19	19	66	12,000 GALS.
(5)				
OCCUPATIONS				
604 MECHANIC (100%)		649	ADMN, SUPERVISORY, MGT PERSNL (75%)	
674 WAREHOUSEMAN; SUPPLY HANDLER (100%)		879	BAGGING OR PACKING WRKR (100%)	
(6)				
LOCATIONS				
005 SURFACE SHOP (100%)				
009 SURFACE MISC (33%)				
010 SURFACE MILL (75%)				
NUODEX, INC.				
NUODEX NAPHTHENATE COBALT 6% C ATALYST	4	4	14	1 GALS.
(5)				
OCCUPATIONS				
514 LABORATORY TECHNICIAN (100%)				
(6)				
LOCATIONS				
009 SURFACE MISC (67%)				
NUODEX NAPHTHENATE CALCIUM 5% CATALYST				
	4	4	14	1 GALS.
(5)				
OCCUPATIONS				
514 LABORATORY TECHNICIAN (100%)				
(6)				
LOCATIONS				
009 SURFACE MISC (67%)				
NUODEX NAPHTHENATE LEAD 24% CA TALYST				
	4	4	14	1 GALS.
(5)				
OCCUPATIONS				
514 LABORATORY TECHNICIAN (100%)				
(6)				
LOCATIONS				
009 SURFACE MISC (67%)				

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: PIGMENT MINERALS

MANUFACTURE'S NAME AND TRADENAME PRODUCTS	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) PREDICTED ANNUAL USAGE	(6) LOCATIONS
NUODEX NAPHTHENE MANGANESE 6 % CATALYST	4	4	14	1 GALS.	
(5) OCCUPATIONS					
514 LABORATORY TECHNICIAN (100%)					

NUOSPERSER 657 DISPERSING AGENT	4	4	14	1 GALS.	
(5) OCCUPATIONS					
514 LABORATORY TECHNICIAN (100%)					
(6) LOCATIONS					
009 SURFACE MISC (67%)					

NUTRA COBALT 6% CATALYST	4	4	14	1 GALS.	
(5) OCCUPATIONS					
514 LABORATORY TECHNICIAN (100%)					
(6) LOCATIONS					
009 SURFACE MISC (67%)					

NUTRA ZIRCONIUM 24% CATALYST	4	4	14	1 GALS.	
(5) OCCUPATIONS					
514 LABORATORY TECHNICIAN (100%)					
(6) LOCATIONS					
009 SURFACE MISC (67%)					

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TABLE 4, PAGE 8

NOTE: TRADE SECRET DATA HAVE BEEN EXCLUDED FROM THIS TABLE.

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: PIGMENT MINERALS

MANUFACTURE'S NAME AND TRADENAME PRODUCTS	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) PREDICTED ANNUAL USAGE	(6) LOCATIONS
PARKS CORPORATION					
PARKS RAW LINSEED OIL WOOD PRE SERVATIVE	4	4	14	1 GALS.	009 SURFACE MISC (67%)
OCCUPATIONS					
514 LABORATORY TECHNICIAN (100%)					

SHERWIN-WILLIAMS CO.

SHERWIN-WILLIAMS INDUSTRIAL MA INTENANCE COATINGS INDUSTRIAL ENAMEL, PURE WHITE B	4	4	14	1 GALS.	
OCCUPATIONS					(6) LOCATIONS
514 LABORATORY TECHNICIAN (100%)					009 SURFACE MISC (67%)

SHERWIN-WILLIAMS COMPANY / CHEMICAL COATINGS DIVISION

SHERWIN-WILLIAMS CHEMICAL COAT INGS PAINT REDUCER (MINERAL SPIRITS) R1 K 4, 530-5	4	4	14	120 GALS.	
OCCUPATIONS					(6) LOCATIONS
514 LABORATORY TECHNICIAN (100%)					009 SURFACE MISC (67%)

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TABLE 4, PAGE 9

NOTE: TRADE SECRET DATA HAVE BEEN EXCLUDED FROM THIS TABLE.

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: PIGMENT MINERALS

MANUFACTURE'S NAME AND TRADENAME PRODUCTS	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) PREDICTED ANNUAL USAGE	(6) LOCATIONS
SHERWIN-WILLIAMS COMPANY / SPRAYON PRODUCTS INDUSTRIAL SUPPLY DIVISION					
SPRAYON 02001 ELECTRICAL CLEAN ER AND LUBRICATING SPRAY (AEROSOL)	2	2	7	144 LBS.	
(5) OCCUPATIONS					
604 MECHANIC (100%)					010 SURFACE MILL (10%)

SIL00, INC.

SIL00 DIESEL FUEL ANTI-GEL, #6 9 9 31 13 GALS.

5A

(5) OCCUPATIONS				(6) LOCATIONS
379 DRYER OPTR; KILN OPTR (100%)			604 MECHANIC (100%)	004 SURFACE MINE (100%)
649 ADMN, SUPERVISORY, MGT PERSNL (100%)				005 SURFACE SHOP (100%)
				010 SURFACE MILL (40%)

SOUTHERN FUEL OILS, INC.

LOW SULFUR #6 FUEL OIL 8 8 28 120,000 GALS.

(5) OCCUPATIONS				(6) LOCATIONS
379 DRYER OPTR; KILN OPTR (100%)			604 MECHANIC (100%)	

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RUN DATE: 09/20/89

TABLE 4, PAGE 10 NOTE: TRADE SECRET DATA HAVE BEEN EXCLUDED FROM THIS TABLE.

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: PIGMENT MINERALS

MANUFACTURE'S NAME AND TRADENAME PRODUCTS	COMMODITY NAME: PIGMENT MINERALS			PREDICTED ANNUAL USAGE
	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	
LOW SULFUR #6 FUEL OIL (CONTINUED)	8	8	28	120,000 GALS.

(5)

OCCUPATIONS

649 ADMN, SUPERVISORY, MGT PERSNL (75%)

(6)

LOCATIONS

010 SURFACE MILL (40%)

UNITED ABRASIVES, INC.

SAIT BF-DS A24N METAL TYPE 27 2 2 7 30 LBS.
GRINDING DISC

(5)

OCCUPATIONS

604 MECHANIC (100%)

(6)

LOCATIONS

005 SURFACE SHOP (40%)
007 SURFACE GRINDING (18%)
010 SURFACE MILL (10%)

VENBLACK, INC.

AUSTIN BLACK 325 27 27 93 100,000 LBS.

(5)

OCCUPATIONS

279 HAMMER MILL OPTR (100%) 514 LABORATORY TECHNICIAN (100%)
649 ADMN. SUPERVISORY, MGT PERSNL (75%) 674 WAREHOUSEMAN; SUPPLY HANDLER (100%)
879 BAGGING OR PACKING WRKR (100%)

(6)

LOCATIONS

007 SURFACE GRINDING (55%)
009 SURFACE MISC (100%)
010 SURFACE MILL (75%)

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TABLE 4, PAGE 11

NOTE: TRADE SECRET DATA HAVE BEEN EXCLUDED FROM THIS TABLE.

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: PIGMENT MINERALS

MANUFACTURE'S NAME AND TRADENAME PRODUCTS	COMMODITY NAME: PIGMENT MINERALS				LOCATIONS
	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) PREDICTED ANNUAL USAGE	
VIRGINIA WELDING SUPPLY CO.	2	2	7	38,896 GALS.	
ACETYLENE, UN1001					
(5) OCCUPATIONS					
604 MECHANIC (100%)					005 SURFACE SHOP (40%) 007 SURFACE GRINDING (18%) 010 SURFACE MILL (10%)

WD-40 COMPANY

WD-40 (AEROSOL)	2	2	7	225 LBS.	
(5) OCCUPATIONS					
604 MECHANIC (100%)					005 SURFACE SHOP (40%) 007 SURFACE GRINDING (18%) 010 SURFACE MILL (10%)

WHITTAKER, CLARK & DANIELS, INC.

BARIUM SULFATE - 291 BARYTES	27	27	93	160,000 LBS.	
(5) OCCUPATIONS					
279 HAMMER MILL OPTR (100%)			514 LABORATORY TECHNICIAN (100%)		007 SURFACE GRINDING (55%)

(CONTINUED NEXT PAGE)

RUN DATE: 09/20/89

TABLE 4, PAGE 12 NOTE: TRADE SECRET DATA HAVE BEEN EXCLUDED FROM THIS TABLE.

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: PIGMENT MINERALS

MANUFACTURE'S NAME AND TRADENAME PRODUCTS	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) PREDICTED ANNUAL USAGE
BARIUM SULFATE - 291 BARYTES (CONTINUED)	27	27	93	160,000 LBS.

(5)
OCCUPATIONS

649 ADMN, SUPERVISORY, MGT PERSNL (75%) 674 WAREHOUSEMAN; SUPPLY HANDLER (100%)
879 BAGGING OR PACKING WRKR (100%)

(6)
LOCATIONS

009 SURFACE MISC (100%)
010 SURFACE MILL (75%)

RUN DATE: 09/20/89

TABLE 5, PAGE 1

NOTE: THIS TABLE DOES NOT CONTAIN DATA CLAIMED TO BE TRADE SECRET.

PHYSICAL AGENT CONDITIONS IDENTIFIED ON MINE PROPERTY

COMMODITY NAME: PIGMENT MINERALS

PHYSICAL AGENT CONDITION	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)			(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)			(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)			(6) LOCATIONS
	14	14	14	14	14	14	14	14	14	
NOISE										
(5) OCCUPATIONS										
279 HAMMER MILL OPTR (100%)										004 SURFACE MINE (100%)
649 ADMN, SUPERVISORY, MGT PERSNL (100%)										007 SURFACE GRINDING (100%)
										009 SURFACE MISC (33%)

TEMPERATURE (PROCESS RELATED) 5 5 17

(5) OCCUPATIONS			(6) LOCATIONS		
379 DRYER OPTR; KILN OPTR (100%)			604 MECHANIC (100%)		010 SURFACE MILL (25%)

WHOLE BODY VIBRATION 29 29 100

(5) OCCUPATIONS			(6) LOCATIONS		
279 HAMMER MILL OPTR (100%)			379 DRYER OPTR; KILN OPTR (100%)		004 SURFACE MINE (100%)
604 MECHANIC (100%)			649 ADMN, SUPERVISORY, MGT PERSNL (100%)		007 SURFACE GRINDING (100%)
674 WAREHOUSEMAN; SUPPLY HANDLER (100%)			879 BAGGING OR PACKING WRKR (100%)		009 SURFACE MISC (33%)
					010 SURFACE MILL (90%)

NOTE: THIS TABLE DOES NOT CONTAIN DATA CLAIMED
TO BE TRADE SECRET.

COMMODITY NAME: PIGMENT MINERALS

	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)
MUSCULOSKELETAL CONDITION			
FINGER AND HANDS			
(5)			
OCCUPATIONS			
604 MECHANIC (100%)			
HEAVY LIFTING	12	12	41
(5)			
OCCUPATIONS			
879 BAGGING OR PACKING WRKR (100%)			
LOWER LIMB	2	2	7
(5)			
OCCUPATIONS			
604 MECHANIC (100%)			
NECK AND/OR BACK	6	6	21
(5)			
OCCUPATIONS			
379 DRYER OPTR; KILN OPTR (100%)		604 MECHANIC (100%)	
649 ADMN, SUPERVISORY, MGT PERSNL (25%)			
WRIST	2	2	7
(5)			
OCCUPATIONS			
604 MECHANIC (100%)			

RUN DATE: 09/20/89

TABLE 7, PAGE 1 NOTE: THIS TABLE DOES NOT CONTAIN DATA CLAIMED
TO BE TRADE SECRET.

WELDING POTENTIAL EXPOSURE

COMMODITY NAME: PIGMENT MINERALS

	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(6) LOCATIONS
WELDING PROCESS				
SHIELD METAL ARC WELDING	2	2	7	
(5) OCCUPATIONS				
604 MECHANIC (100%)				005 SURFACE SHOP (40%) 007 SURFACE GRINDING (18%) 010 SURFACE MILL (10%)
OXYFUEL GAS CUTTING	2	2	7	
(5) OCCUPATIONS				
604 MECHANIC (100%)				005 SURFACE SHOP (40%) 007 SURFACE GRINDING (18%) 010 SURFACE MILL (10%)

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16. Abstract (Limit: 200 words) This report presented data from the National Occupational Health Survey of Mining (NOHSM) for Pigment Minerals. The data were collected during a January 1988 survey. The data related to occupational health program and policy information, an inventory of all health related substances found on mine property, and a series of worksite observations which detail potential exposure to chemical and physical agents. Data were collected by surveyors who traveled to the one active Pigment Minerals site. The information contained in this report was categorized into seven tables: four concerning chemical agents, one concerning musculoskeletal overload conditions, one concerning physical exposure conditions, and one concerning welding processes. The estimated annual usage information was provided for chemical substances, both generic and tradenames. No Mine Safety and Health Administration regulated, or chemicals with a NIOSH recommended exposure limit were found on mine property. Potentials for exposure to noise, whole body vibration and process related temperature were noted. Potential exposures to five musculoskeletal overload conditions were found. Shield metal arc welding and oxyfuel gas cutting were observed to be used.			
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