

PB90184276



NATIONAL OCCUPATIONAL HEALTH SURVEY OF MINING

MARBLE (DIMENSION) REPORT

DECEMBER 14, 1989

COMMENTS SHOULD BE DIRECTED TO:

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TABLE OF CONTENTS

SUBJECT

INTRODUCTION

TABLE 1:	MSHA-REGULATED CHEMICALS FOUND ON MINE PROPERTY
TABLE 2:	CHEMICALS FOUND ON MINE PROPERTY THAT HAVE A NIOSH RECOMMENDED EXPOSURE LIMIT BUT ARE NOT REGULATED BY MSHA
TABLE 3:	CHEMICALS FOUND ON MINE PROPERTY THAT HAVE NO NIOSH RECOMMENDATION OR MSHA EXPOSURE LIMIT
TABLE 4:	TRADE NAME PRODUCTS FOUND ON MINE PROPERTY
TABLE 5:	PHYSICAL AGENT CONDITIONS IDENTIFIED ON MINE PROPERTY
TABLE 6:	MUSCULOSKELETAL OVERLOAD CONDITIONS IDENTIFIED ON MINE PROPERTY
TABLE 7:	WELDING POTENTIAL EXPOSURES

## INTRODUCTION

This is one of a series of reports on the National Occupational Health Survey of Mining (NOHSM), which has been carried out by the National Institute for Occupational Safety and Health (NIOSH). The NOHSM began in May, 1984, as an effort by NIOSH to obtain representative data related to occupational health from the mining industry. This particular report provides NOHSM data for the Marble (Dimension) commodity. Three (3) sample sites were selected from the Marble (Dimension) population of active mining facilities. Of these, two (2) were surveyed between August and September, 1987, but because of production inactivity during the survey period, it was not possible to conduct a survey at the one (1) other site. 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 trade names.

This report lists the survey findings in a number of individual tables representing the different products and conditions to which workers in the commodity were found to be potentially exposed. The following is a breakdown of these tables, including the number of agents associated with each table, for the Marble (Dimension) commodity:

- Table 1 -- 1 MSHA-regulated chemical.
- Table 2 -- 2 Chemicals that have a NIOSH recommended exposure limit but are not MSHA-regulated.
- Table 3 -- 2 Chemicals that have no NIOSH recommended exposure limit and are not MSHA-regulated.
- Table 4 -- 41 Trade name products.
- Table 5 -- 4 Physical agent conditions.
- Table 6 -- 10 Musculoskeletal overload conditions.
- Table 7 -- 3 Welding processes.

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 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 120 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

TABLE DEFINITIONS

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

MSHA REGULATED CHEMICALS FOUND ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

CHEMICAL NAME	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) PREDICTED ANNUAL USAGE
ACETYLENE	5	5	5	65,860 GALS.

(5)  
OCCUPATIONS

389 FORKLIFT OPTR (100%)	604 MECHANIC (100%)
649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)	782 FRONT-END LOADER OPTR ( 13%)

(6)  
LOCATIONS

005 SURFACE SHOP (100%)



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

COMMODITY NAME: MARBLE (DIMENSION)

CHEMICAL NAME	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) PREDICTED ANNUAL USAGE	(6) LOCATIONS
GASOLINE-LEADED	1	1	1	4,482 GALS.	009 SURFACE MISC ( 14%)
<hr/>					
(5)					
OCCUPATIONS					
<hr/>					
930 SKIP TENDER (100%)					
<hr/>					
GASOLINE-UNLEADED					
<hr/>					
(5)					
OCCUPATIONS					
<hr/>					
604 MECHANIC ( 50%)	17	18	18	8,965 GALS.	004 SURFACE MINE ( 30%)
649 ADMN, SUPERVISORY, MGT PERSNL ( 83%)					009 SURFACE MISC ( 14%)
616 LABORER; BULLGANG ( 91%)					
674 WAREHOUSEMAN; SUPPLY HANDLER (100%)					

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

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
--	---	--	--	-------------------------------------

AIRCO, INC.

AIRCO 6013

290 LBS.

(5)

OCCUPATIONS

649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)

(6)

LOCATIONS

009 SURFACE MISC ( 14%)

AIRCO 7018

290 LBS.

(5)

OCCUPATIONS

649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)

(6)

LOCATIONS

009 SURFACE MISC ( 14%)

ARCAIR

ARCAIR COPPERCLAD POINTED ELEC  
TRODES TYPE D-C CAT. NO. 22 043 003

13 LBS.

(5)

OCCUPATIONS

604 MECHANIC ( 50%)

(6)

LOCATIONS

005 SURFACE SHOP ( 20%)

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

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
BAY STATE ABRASIVES / DRESSER	2	2	2	16 LBS.
A-36-05-V22 VS106E GRINDING WH EEL				

(5)

OCCUPATIONS

604 MECHANIC (100%)

(6)

LOCATIONS

005 SURFACE SHOP ( 40%)

BLUE DIAMOND COAL COMPANY

4"X8" BLOCK COAL	46	49	50	213,449 LBS.
(5) OCCUPATIONS				
399 DIMN STONE CTR/PLSHR/ROCK SWR (100%)			604 MECHANIC ( 50%)	
616 LABORER; BULLGANG ( 91%)			649 ADMN, SUPERVISORY, MGT PERSNL ( 67%)	
734 ROTARY DRILL OPTR (100%)			782 FRONT-END LOADER OPTR ( 88%)	
921 HOIST OPTR (100%)				

(5)

OCCUPATIONS

004 SURFACE MINE ( 85%)  
009 SURFACE MISC ( 14%)

(6)

LOCATIONS

CERTIFIED LABORATORIES / DIVISION OF NCH CORPORATION

LUBE-TRAC OPEN GEAR LUBRICANT (AEROSOL)	1	6	6	52 LBS.
(5) OCCUPATIONS				
649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)				

(5)

OCCUPATIONS

009 SURFACE MISC ( 14%)

(6)

LOCATIONS

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

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	
DRYDEN OIL COMPANY								
DIESELALL MOTOR OIL SAE 30W	12	13	13				1,921 GALS.	
(5)								
OCCUPATIONS								
376 TRUCK DRIVER (100%)				389 FORKLIFT OPTR (100%)				
604 MECHANIC ( 50%)				649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)				
782 FRONT-END LOADER OPTR (100%)								

(6)  
LOCATIONS

- 009 SURFACE MISC ( 14%)
- 005 SURFACE SHOP ( 40%)
- 004 SURFACE MINE ( 15%)
- 006 SURFACE CRUSHING ( 40%)

DRYDENE PYROPLEX E.P. NO. 2 GR 3 3 3 1,281 LBS.  
EASE PART NO. 52253

(5)

OCCUPATIONS

399 DIMN STONE CTR/PLSHR/ROCK SWR (100%) 604 MECHANIC ( 50%)  
649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)

(6)  
LOCATIONS

- 004 SURFACE MINE ( 4%)
- 005 SURFACE SHOP ( 20%)

DRYDENE PYROPLEX E.P. NO.1 GRE 3 3 3 2,818 LBS.  
ASE

(5)

OCCUPATIONS

399 DIMN STONE CTR/PLSHR/ROCK SWR (100%) 604 MECHANIC ( 50%)  
649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)

(6)  
LOCATIONS

- 004 SURFACE MINE ( 4%)
- 005 SURFACE SHOP ( 20%)

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

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
DRYDEN OIL COMPANY	12	13	13	4,169 GALS.	
PARADENE 68 AW					
<b>(5)</b>					
OCCUPATIONS					
376 TRUCK DRIVER (100%)		389 FORKLIFT OPTR (100%)			009 SURFACE MISC ( 14%)
604 MECHANIC ( 50%)		649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)			005 SURFACE SHOP ( 40%)
782 FRONT-END LOADER OPTR (100%)					004 SURFACE MINE ( 15%)
					006 SURFACE CRUSHING ( 40%)

ENSIGN BICKFORD COMPANY

PRIMACORD DETACORD DETONATING CORD	46	49	50	320 LBS.	
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(5)

OCCUPATIONS

376 TRUCK DRIVER (100%)		399 DIMN STONE CTR/PLSHR/ROCK SWR (100%)			004 SURFACE MINE ( 87%)
604 MECHANIC ( 50%)		616 LABORER; BULLGANG ( 91%)			
649 ADMN, SUPERVISORY, MGT PERSNL ( 67%)		734 ROTARY DRILL OPTR (100%)			
782 FRONT-END LOADER OPTR ( 88%)					

RX-PRIMALINE DETONATING CORD	46	49	50	4,002 LBS.	
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(5)

OCCUPATIONS

376 TRUCK DRIVER (100%)		399 DIMN STONE CTR/PLSHR/ROCK SWR (100%)			
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(CONTINUED NEXT PAGE)

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

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
ENSIGN BICKFORD COMPANY				
RX-PRIMALINE DETONATING CORD (CONTINUED)	46	49	50	4,002 LBS.

(5)  
OCCUPATIONS

604 MECHANIC ( 50%)  
649 ADMN, SUPERVISORY, MGT PERSNL ( 67%)  
782 FRONT-END LOADER OPTR ( 88%)

(6)  
004 SURFACE MINE ( 87%)

EXXON OIL CORPORATION

NUTO H-68 HYDRAULIC OIL 12 13 13 1,390 GALS.

(5)

376 TRUCK DRIVER (100%)  
604 MECHANIC ( 50%)  
782 FRONT-END LOADER OPTR (100%)

(6)  
LOCATIONS

009 SURFACE MISC ( 14%)  
005 SURFACE SHOP ( 40%)  
004 SURFACE MINE ( 15%)  
006 SURFACE CRUSHING ( 40%)

XD3 MOTOR OIL SAE 30W 12 13 13 640 GALS.

(5)

376 TRUCK DRIVER (100%)

(6)  
LOCATIONS

009 SURFACE MISC ( 14%)

(CONTINUED NEXT PAGE)

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

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	
	EXXON OIL CORPORATION	12	13	13	13			640 GALS.
XD3 MOTOR OIL SAE 30W (CONTINUED)								
(5) OCCUPATIONS								
604 MECHANIC ( 50%)					649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)			
782 FRONT-END LOADER OPTR (100%)								
(6) 005 SURFACE SHOP ( 40%) 004 SURFACE MINE ( 15%) 006 SURFACE CRUSHING ( 40%)								

GO-JO INDUSTRIES, INC.

GO-JO HEAVY DUTY HAND CLEANER 53 57 58 841 LBS.  
CREME TYPE STOCK NO. 1554

(5)  
OCCUPATIONS

079 CRUSHER OPTR (100%)  
376 TRUCK DRIVER (100%)  
604 MECHANIC (100%)  
649 ADMN, SUPERVISORY, MGT PERSNL ( 67%)  
782 FRONT-END LOADER OPTR (100%)  
930 SKIP TENDER (100%)

(6)  
LOCATIONS

004 SURFACE MINE ( 85%)  
005 SURFACE SHOP ( 80%)  
006 SURFACE CRUSHING (100%)  
009 SURFACE MISC ( 43%)

HOBART BROTHERS CO.

HOBALLOY 11018M COVERED ELECTR 1 1 1 85 LBS.  
ODES CLASS E11018M STK. NO. S 126051 35

(5)  
OCCUPATIONS

604 MECHANIC ( 50%)

(6)  
LOCATIONS

005 SURFACE SHOP ( 20%)

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

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
HOBART BROTHERS CO. 418 COVERED ELECTRODES E7018 S TK. NO. S 119944-35	5	5	5	2,668 LBS.

(5)  
OCCUPATIONS

389 FORKLIFT OPTR (100%)  
649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)  
604 MECHANIC (100%)  
782 FRONT-END LOADER OPTR ( 13%)

(6)  
LOCATIONS

004 SURFACE MINE ( 2%)  
005 SURFACE SHOP (100%)

IRECO

IRECO FUSE DETONATORS NO. 6 46 49 50 5 LBS.

(5)  
OCCUPATIONS

376 TRUCK DRIVER (100%)  
604 MECHANIC ( 50%)  
649 ADMN, SUPERVISORY, MGT PERSNL ( 67%)  
782 FRONT-END LOADER OPTR ( 88%)  
399 DIMN STONE CTR/PLSHR/ROCK SWR (100%)  
616 LABORER; BULLGANG ( 91%)  
734 ROTARY DRILL OPTR (100%)

(6)  
LOCATIONS

004 SURFACE MINE ( 87%)

KANO LABORATORIES

AERO KROIL (AEROSOL) 2 2 2 9 LBS.

(5)  
OCCUPATIONS

389 FORKLIFT OPTR (100%)

604 MECHANIC ( 50%)

(6)  
LOCATIONS

005 SURFACE SHOP ( 40%)

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

MANUFACTURE'S NAME AND TRADENAME PRODUCTS KEYSTONE DIVISION	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) PREDICTED ANNUAL USAGE	LOCATIONS
	KEYSTONE WRD-00 SAE 30W ISO 10 0	1	1	1	

(5)  
OCCUPATIONS

921 HOIST OPTR (100%)

MOBIL OIL CORPORATION

ALMO 532 AIR TOOL OIL PRODUCT CODE 60321 8	24	26	26	2,113 GALS.	
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(5)  
OCCUPATIONS

604 MECHANIC ( 50%)  
734 ROTARY DRILL OPTR (100%)

649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)

(6)  
LOCATIONS

005 SURFACE SHOP ( 20%)  
004 SURFACE MINE ( 43%)

MOBIL ALMO 529 AIR TOOL OIL	5	29	30	1,275 GALS.	
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(5)  
OCCUPATIONS

334 WAGON DRILL OPTR (100%)  
616 LABORER; BULLGANG ( 9%)

607 JACKHAMMER/CHIPPER OPTR (100%)

(6)  
LOCATIONS

004 SURFACE MINE ( 9%)

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

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 VACTRA OIL NO. 4	1	6	6	174 GALS.	
<b>(5)</b>					
OCCUPATIONS	-----				
649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)	-----				

MOBILTAC E OPEN GEAR LUBRICANT	1	6	6	406 LBS.	
<b>(5)</b>					
OCCUPATIONS	-----				
649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)	-----				

MOBIL LUBE HD 80W-90 GEAR LUBRICANT	1	6	6	406 LBS.	
<b>(5)</b>					
OCCUPATIONS	-----				
649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)	-----				

NORTON					
NORZON III GRINDING DISC	2	2	2	26 LBS.	
<b>(5)</b>					
OCCUPATIONS	-----				
604 MECHANIC ( 100%)	-----				
<b>(6)</b>					
OCCUPATIONS	-----				
005 SURFACE SHOP ( 40%)	-----				

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) PREDICTED ANNUAL USAGE	(6) LOCATIONS
MANUFACTURE'S NAME AND TRADENAME PRODUCTS PARR, INC.					
SUPER DRILL BIT & COUPLING LUB E	2	12	12	608 LBS.	
-----					
(5) OCCUPATIONS					
334 WAGON DRILL OPTR (100%)					004 SURFACE MINE ( 4%)

RAYNOR'S BEARINGS INDUSTRIAL DIVISION

METABO FLEXIMANT SUPER REINFOR CED TYPE 27 GRINDING DISC	1	6	6	23 LBS.	
-----					
(5) OCCUPATIONS					(6) LOCATIONS
649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)					009 SURFACE MISC ( 14%)

SHARE CORPORATION

SHARE AIRLINE ANTIFREEZE	4	23	24	70 GALS.	
-----					
(5) OCCUPATIONS					(6) LOCATIONS
334 WAGON DRILL OPTR (100%)					004 SURFACE MINE ( 8%)
					607 JACKHAMMER/CHIPPER OPTR (100%)

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

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	(5) OCCUPATIONS	(6) LOCATIONS
TEXACO REFINING AND MARKETING INC. AUTOMATIC TRANSMISSION FLUID D EXRON II	1	1	1	307 GALS.		004 SURFACE MINE ( 2%)
376 TRUCK DRIVER (100%)						

MARFAK MULTI PURPOSE 2 PRODUCT CODE 0958	1	1	1	261 LBS.		009 SURFACE MISC ( 14%)
921 HOIST OPTR (100%)						

MARFAK 0 PRODUCT CODE 0927	2	2	2	224 LBS.		106 SURFACE CRUSHING ( 40%)
079 CRUSHER OPTR (100%)						

MARFAK 00 PRODUCT CODE 1907	2	2	2	149 LBS.		006 SURFACE CRUSHING ( 40%)
079 CRUSHER OPTR (100%)						

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

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
TEXACO REFINING AND MARKETING INC.					
MOLYTEX EP 2 GREASE	25	27	27	1,306 LBS.	
<b>(5)</b>					
OCCUPATIONS					
367 SHOVEL OPTR (100%)		376	TRUCK DRIVER (100%)		005 SURFACE SHOP ( 20%)
389 FORKLIFT OPTR (100%)		399	DIMN STONE CTR/PLSHR/ROCK SWR (100%)		004 SURFACE MINE ( 38%)
604 MECHANIC ( 50%)		616	LABORER; BULLGANG ( 91%)		006 SURFACE CRUSHING ( 60%)
649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)		782	FRONT-END LOADER OPTR (100%)		009 SURFACE MISC ( 29%)
930 SKIP TENDER (100%)					

TEXCO INC.

ROCK DRILL 46	24	26	26	6,339 GALS.	
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(5)

OCCUPATIONS

604 MECHANIC ( 50%)		649	ADMN, SUPERVISORY, MGT PERSNL ( 17%)		005 SURFACE SHOP ( 20%)
734 ROTARY DRILL OPTR (100%)					004 SURFACE MINE ( 43%)

THE BOC GROUP, INC.

AIRCO ACETYLENE	1	6	6	18,204 GALS.	
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(5)

OCCUPATIONS

649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)					009 SURFACE MISC ( 14%)
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TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

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
THE CARBORUNDUM COMPANY AY6-06-V30 GRINDING WHEEL	2	2	2	16 LBS.	005 SURFACE SHOP ( 40%)
-----					
OCCUPATIONS 604 MECHANIC ( 100%)					

THE DRACKETT PRODUCTS COMPANY

WINDEX GLASS CLEANER WITH AMMO NIA-D	1	1	1	1 GALS.	005 SURFACE SHOP ( 20%)
-----					
OCCUPATIONS 604 MECHANIC ( 50%)					

THE SAFETY-KLEEN CORP.

SAFETY-KLEEN MODEL NO. 17.4R	4	4	4	53 GALS.	005 SURFACE SHOP ( 80%)
-----					
OCCUPATIONS 389 FORKLIFT OPTR ( 100%) 782 FRONT-END LOADER OPTR ( 13%)			604 MECHANIC ( 100%)		

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

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
WAVERLY MINERAL PRODUCTS COMPANY HI-DRY ALL PURPOSE FLOOR ABSOR BENT	1	1	1	470 LBS.

(5)

OCCUPATIONS

604 MECHANIC ( 50%)

(6)

LOCATIONS

005 SURFACE SHOP ( 20%)

WD-40 COMPANY

WD-40 (AEROSOL)

(5)

OCCUPATIONS

389 FORKLIFT OPTR (100%)

13 LBS.

(6)

LOCATIONS

005 SURFACE SHOP ( 40%)

604 MECHANIC ( 50%)

PHYSICAL AGENT CONDITIONS IDENTIFIED ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

PHYSICAL AGENT CONDITION	(1)	(2)	(3)
	#WORKERS POTENTIALLY EXPOSED (OBSERVED)	#WORKERS POTENTIALLY EXPOSED (PREDICTED)	%WORKERS POTENTIALLY EXPOSED (PREDICTED)
NOISE	60	92	94
<b>OCCUPATIONS</b>			
079 CRUSHER OPTR (100%)		334 WAGON DRILL OPTR (100%)	
367 SHOVEL OPTR (100%)		376 TRUCK DRIVER (100%)	
399 DIMN STONE CTR/PLSHR/ROCK SWR (100%)		604 MECHANIC (100%)	
607 JACKHAMMER/CHIPPER OPTR (100%)		616 LABORER; BULLGANG (100%)	
649 ADMN SUPERVISORY MGT PERSNL (100%)		734 ROTARY DRILL OPTR (100%)	
782 FRONT-END LOADER OPTR (100%)		921 HOIST OPTR (100%)	
930 SKIP TENDER (100%)			

(6)  
LOCATIONS

- 005 SURFACE SHOP ( 20%)
- 004 SURFACE MINE (100%)
- 006 SURFACE CRUSHING (100%)
- 009 SURFACE MISC ( 43%)

SEGMENTAL BODY VIBRATION

38 64 65

(5)

OCCUPATIONS

- 334 WAGON DRILL OPTR (100%)
- 607 JACKHAMMER/CHIPPER OPTR (100%)
- 734 ROTARY DRILL OPTR (100%)
- 604 MECHANIC ( 50%)
- 616 LABORER; BULLGANG (100%)

(6)  
LOCATIONS

- 005 SURFACE SHOP ( 20%)
- 004 SURFACE MINE ( 70%)

TEMPERATURE (PROCESS RELATED)

2 2 2

(5)

OCCUPATIONS

- 376 TRUCK DRIVER (100%)
- 604 MECHANIC ( 50%)

(6)  
LOCATIONS

- 004 SURFACE MINE ( 2%)
- 005 SURFACE SHOP ( 20%)



MUSCULOSKELETAL OVERLOAD CONDITIONS IDENTIFIED ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(6) LOCATIONS
MUSCULOSKELETAL CONDITION	7	7	8	
AWKWARD LIFTING				
<b>(5)</b>				
OCCUPATIONS				
367 SHOVEL OPTR (100%)		389 FORKLIFT OPTR (100%)		006 SURFACE CRUSHING ( 20%)
604 MECHANIC (100%)		649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)		004 SURFACE MINE ( 2%)
674 WAREHOUSEMAN; SUPPLY HANDLER (100%)		782 FRONT-END LOADER OPTR ( 13%)		009 SURFACE MISC ( 14%)
				005 SURFACE SHOP (100%)
FOREARM, ARM, AND SHOULDER	12	13	13	
<b>(5)</b>				
OCCUPATIONS				
604 MECHANIC (100%)		616 LABORER; BULLGANG ( 91%)		005 SURFACE SHOP ( 20%)
				004 SURFACE MINE ( 21%)
FINGER AND HANDS	15	16	16	
<b>(5)</b>				
OCCUPATIONS				
079 CRUSHER OPTR ( 50%)		367 SHOVEL OPTR (100%)		006 SURFACE CRUSHING ( 40%)
604 MECHANIC (100%)		616 LABORER; BULLGANG ( 91%)		005 SURFACE SHOP ( 40%)
921 HOIST OPTR (100%)				004 SURFACE MINE ( 21%)
				009 SURFACE MISC ( 14%)

MUSCULOSKELETAL OVERLOAD CONDITIONS IDENTIFIED ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(6) LOCATIONS
MUSCULOSKELETAL CONDITION	8	13	14	
HEAVY LIFTING				
<b>(5)</b>				
<b>OCCUPATIONS</b>				
367 SHOVEL OPTR (100%)		389 FORKLIFT OPTR (100%)		006 SURFACE CRUSHING ( 20%)
604 MECHANIC (100%)		616 LABORER; BULLGANG ( 9%)		004 SURFACE MINE ( 4%)
649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)	19	674 WAREHOUSEMAN; SUPPLY HANDLER (100%)		009 SURFACE MISC ( 14%)
782 FRONT-END LOADER OPTR ( 13%)				005 SURFACE SHOP (100%)
LOWER LIMB	19	39	40	
<b>(5)</b>				
<b>OCCUPATIONS</b>				
079 CRUSHER OPTR (100%)		604 MECHANIC (100%)		006 SURFACE CRUSHING ( 40%)
607 JACKHAMMER/CHIPPER OPTR (100%)		616 LABORER; BULLGANG (100%)		005 SURFACE SHOP ( 20%)
649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)	19	930 SKIP TENDER (100%)		004 SURFACE MINE ( 26%)
NECK AND/OR BACK	40	62	63	
<b>(5)</b>				
<b>OCCUPATIONS</b>				
079 CRUSHER OPTR (100%)		604 MECHANIC (100%)		006 SURFACE CRUSHING ( 40%)
607 JACKHAMMER/CHIPPER OPTR (100%)		616 LABORER; BULLGANG (100%)		005 SURFACE SHOP ( 20%)
649 ADMN, SUPERVISORY, MGT PERSNL ( 17%)	40	734 ROTARY DRILL OPTR (100%)		009 SURFACE MISC ( 14%)
				004 SURFACE MINE ( 68%)

MUSCULOSKELETAL OVERLOAD CONDITIONS IDENTIFIED ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)
1	1	1

MUSCULOSKELETAL CONDITION

PRONE OR SUPINE LYING

(5)

OCCUPATIONS

604 MECHANIC ( 50%)

(6)

LOCATIONS

005 SURFACE SHOP ( 20%)

STANDING

22

23

24

(5)

OCCUPATIONS

734 ROTARY DRILL OPTR (100%)

(6)

LOCATIONS

004 SURFACE MINE ( 42%)

SITTING

13

14

14

(5)

OCCUPATIONS

367 SHOVEL OPTR (100%)

389 FORKLIFT OPTR (100%)

782 FRONT-END LOADER OPTR (100%)

376 TRUCK DRIVER (100%)

674 WAREHOUSEMAN; SUPPLY HANDLER (100%)

921 HOIST OPTR (100%)

(6)

LOCATIONS

004 SURFACE MINE ( 15%)

006 SURFACE CRUSHING ( 60%)

009 SURFACE MISC ( 43%)

WRIST

15

16

16

(5)

OCCUPATIONS

079 CRUSHER OPTR ( 50%)

367 SHOVEL OPTR (100%)

(6)

LOCATIONS

006 SURFACE CRUSHING ( 40%)

(CONTINUED NEXT PAGE)

MUSCULOSKELETAL OVERLOAD CONDITIONS IDENTIFIED ON MINE PROPERTY

COMMODITY NAME: MARBLE (DIMENSION)

	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(6) LOCATIONS
MUSCULOSKELETAL CONDITION	15	16	16	
WRIST (CONTINUED)				
(5) OCCUPATIONS				
604 MECHANIC (100%)				005 SURFACE SHOP ( 40%)
921 HOIST OPTR (100%)			616 LABORER; BULLGANG ( 91%)	004 SURFACE MINE ( 21%)
				009 SURFACE MISC ( 14%)

WELDING POTENTIAL EXPOSURE

COMMODITY NAME: MARBLE (DIMENSION)

	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)
WELDING PROCESS	1	1	1
ARC CUTTING	1	1	1

(5)

OCCUPATIONS

604 MECHANIC ( 50%)

(6)

LOCATIONS

005 SURFACE SHOP ( 20%)

SHIELD METAL ARC WELDING

6 11 11

(5)

OCCUPATIONS

389 FORKLIFT OPTR (100%)  
649 ADMN, SUPERVISORY, MGT PERSNL ( 33%) 604 MECHANIC (100%)  
782 FRONT-END LOADER OPTR ( 13%)

(6)

LOCATIONS

004 SURFACE MINE ( 2%)  
009 SURFACE MISC ( 14%)  
005 SURFACE SHOP (100%)

OXYFUEL GAS CUTTING

6 11 11

(5)

OCCUPATIONS

389 FORKLIFT OPTR (100%)  
649 ADMN, SUPERVISORY, MGT PERSNL ( 33%) 604 MECHANIC (100%)  
782 FRONT-END LOADER OPTR ( 13%)

(6)

LOCATIONS

009 SURFACE MISC ( 14%)  
005 SURFACE SHOP (100%)

<b>REPORT DOCUMENTATION PAGE</b>	1. REPORT NO.	2.	3. Recipient's Accession No. <b>PE 90 184276 /AS</b>
4. Title and Subtitle National Occupational Health Survey of Mining. Marble (Dimension) Report		5. Report Date 89/12/14	
7. Author(s) Anonymous		8. Performing Organization Rept. No.	
9. Performing Organization Name and Address Division of Respiratory Disease Studies, NIOSH, Morgantown, West Virginia		10. Project/Task/Work Unit No.  11. Contract (C) or Grant(G) No. (C) (G)	
12. Sponsoring Organization Name and Address		13. Type of Report & Period Covered  14.	
15. Supplementary Notes			
16. Abstract (Limit: 200 words) This investigation concerned working conditions and identification of potential hazards at two marble (dimension) mining sites surveyed between August and September of 1987. This report identified potential exposures and provided the associated numbers of workers, the occupation of those workers and the location on the mine property where the potential exposures were observed. The information was presented in the form of seven tables: four concerned chemical agents; one concerned musculoskeletal overload conditions; one concerned physical exposure conditions; and one concerned welding processes. Estimated annual usage information was provided for chemical substances, both generic and trade names. One chemical was identified on site which is regulated by the Mine Health and Safety Administration (MMSA) guidelines regarding exposure, two which have NIOSH recommended exposure limits; and two additional chemicals which have no NIOSH recommended exposure limits or MMSA guidelines. There were 41 identified trade named products. Physical agents to which these workers were exposed included noise, segmental body vibration, temperature, and whole body vibration. Musculoskeletal overload conditions included awkward lifting; strain to the shoulder, forearm, and arm; stress to fingers and hands; heavy lifting; lower limb stress; strain to the neck and/or back regions; prone or supine lying; standing; sitting; and wrist activity. Three welding operations were noted: arc cutting, shield metal arc welding, and oxyfuel gas cutting.			
17. Document Analysis a. Descriptors  b. Identifiers/Open-Ended Terms NIOSH-Publication, Musculoskeletal-system, Welders, Mining-industry, Miners, Coal-mining, Vibration-exposure, Ergonomics, Occupational-exposure, Noise-exposure  c. COSATI Field/Group			
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