

PB90180738



NATIONAL OCCUPATIONAL HEALTH SURVEY OF MINING

ZIRCON REPORT

OCTOBER 4, 1989

COMMENTS SHOULD BE DIRECTED TO

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NATIONAL OCCUPATIONAL HEALTH SURVEY OF MINING  
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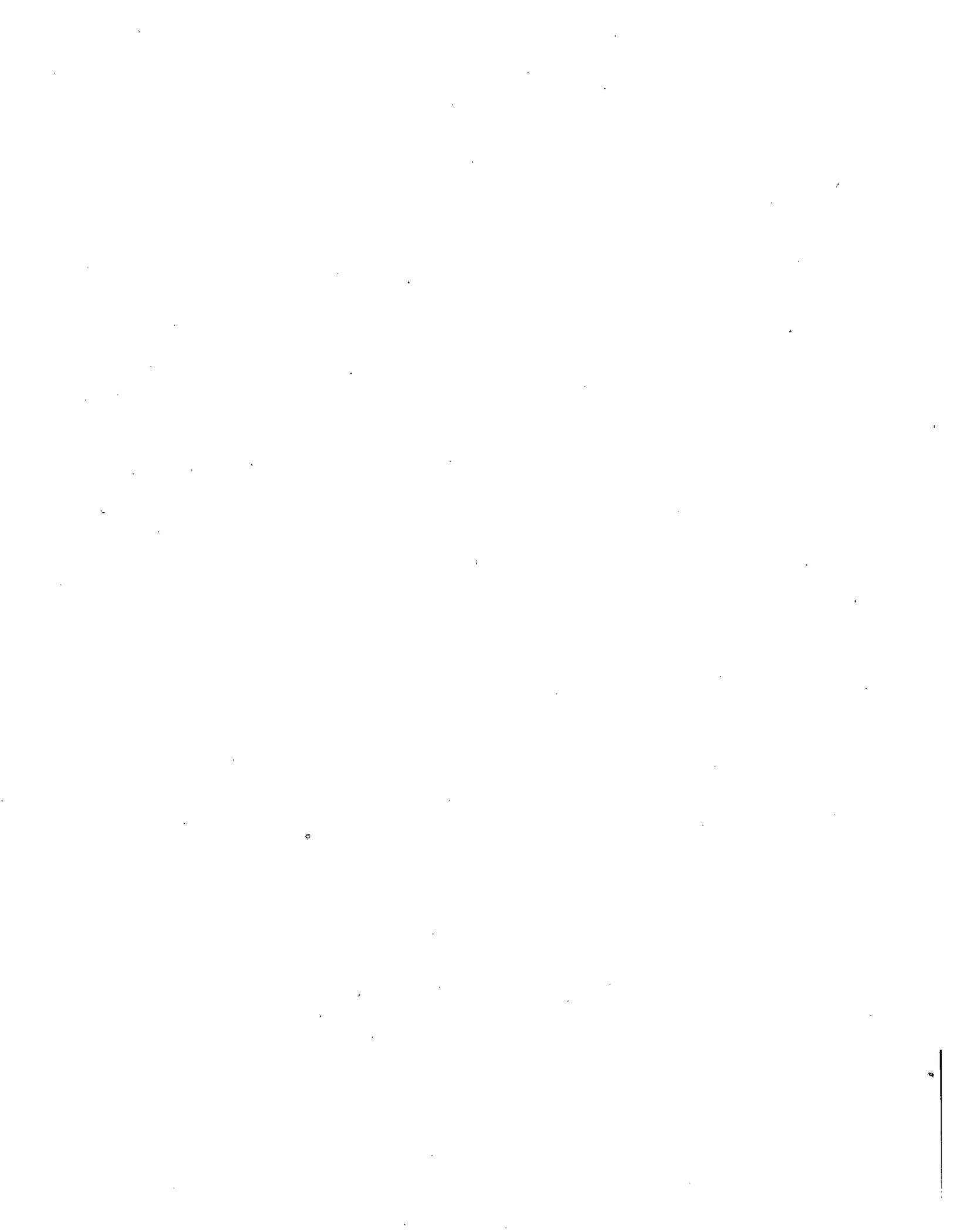


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## INTRODUCTION

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 Zircon commodity, which was surveyed during June, 1987. One Zircon mine was surveyed, it was the only facility listed by MSHA for the Zircon commodity at the time of the survey. 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 physical exposure conditions; and one welding processes. Estimated annual usage information is provided for chemical substances, both generic and tradenames.

For the Zircon commodity, no chemicals were found for Tables 1, 2, and 3. Table 4 lists 21 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 ten musculoskeletal conditions: prone or supine lying; heavy lifting; finger and hands; neck and/or back; forearm, arm, and shoulder; awkward lifting; frequent lifting; lower limb; wrist; and diminished light. Table 7 indicates the three welding processes: shield metal arc welding; oxyfuel gas cutting; and torch-soldering, which were observed to be used in the Zircon 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 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

TABLE DEFINITIONS

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

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: ZIRCON

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: 09/19/89

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: ZIRCON

CHEMICAL NAME	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) PREDICTED ANNUAL USAGE
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NO DATA FOR THIS TABLE IN THIS COMMODITY

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: ZIRCON

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

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: ZIRCON

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
ATLANTIC RICHFIELD CO.					
ARCO HD GEAR OIL 80W-90	1	1	3	360 LBS.	
<b>(5)</b>					
OCCUPATIONS					
604 MECHANIC ( 33%)					007 SURFACE GRINDING ( 4%)

CARBORUNDUM COMPANY

A60-L6-V30 GRINDING WHEEL	5	5	17	3 LBS.	
<b>(5)</b>					
OCCUPATIONS					
604 MECHANIC (100%)					005 SURFACE SHOP (100%)

COUNTRY GAS

PROPANE	24	24	83	5,000 GALS.	
<b>(5)</b>					
OCCUPATIONS					
179 BALL, ROD, PEBBLE MILL OPTR (100%)					006 SURFACE CRUSHING (100%)
604 MECHANIC (100%)					009 SURFACE MISC ( 50%)
782 FRONT-END LOADER OPTR (100%)					007 SURFACE GRINDING ( 96%)

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: ZIRCON

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
ENRIGHT OIL SERVICE CO. DIESEL FUEL OIL #2	24	24	83	24,000 GALS.	
<b>OCCUPATIONS</b>					
179 BALL, ROD, PEBBLE MILL OPTR (100%)		379	DRYER OPTR; KILN OPTR (100%)		006 SURFACE CRUSHING (100%)
604 MECHANIC (100%)		649	ADMN, SUPERVISORY, MGT PERSNL ( 80%)		009 SURFACE MISC ( 50%)
782 FRONT-END LOADER OPTR (100%)		879	BAGGING OR PACKING WRKR (100%)		007 SURFACE GRINDING ( 96%)
<b>SUNOCO SECO SR MW10</b>					
	1	1	3	110 GALS.	
<b>OCCUPATIONS</b>					
604 MECHANIC ( 33%)					007 SURFACE GRINDING ( 4%)
<b>EVERGREEN PRODUCTS, INC.</b>					
STODDARD SOLVENT, UN1255 PETRO LEUM NAPHTHA	3	3	10	110 GALS.	
<b>OCCUPATIONS</b>					
604 MECHANIC (100%)					005 SURFACE SHOP ( 60%) 007 SURFACE GRINDING ( 4%)

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: ZIRCON

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
FLAME WELDING SUPPLY	5	5	17	10,771 GALS.	
ACETYLENE					
(5) OCCUPATIONS					
604 MECHANIC (100%)			649 ADMN, SUPERVISORY, MGT PERSNL ( 40%)		005 SURFACE SHOP (100%) 007 SURFACE GRINDING ( 22%)

HOBART BROTHERS

HOBART 335A ELECTRODE	1	1	3	200 LBS.	
(5) OCCUPATIONS					
649 ADMN, SUPERVISORY, MGT PERSNL ( 20%)					(6) LOCATIONS 007 SURFACE GRINDING ( 4%)

LINCOLN ELECTRIC COMPANY

FLEETWELD 7 ELECTRODE	1	1	3	200 LBS.	
(5) OCCUPATIONS					
649 ADMN, SUPERVISORY, MGT PERSNL ( 20%)					(6) LOCATIONS 007 SURFACE GRINDING ( 4%)

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: ZIRCON

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
JETWELD LH-70 ELECTRODES	5	5	17	400 LBS.	005 SURFACE SHOP (100%) 007 SURFACE GRINDING ( 22%)
OCCUPATIONS					
604 MECHANIC (100%)		649 ADMN, SUPERVISORY, MGT PERSNL ( 40%)			
STAINWELD 309-16					
	2	2	7	20 LBS.	
OCCUPATIONS					
604 MECHANIC ( 67%)					007 SURFACE GRINDING ( 9%)
LUKENS METAL CO.					
50/50 LUCO WIRE SOLDER	1	1	3	2 LBS.	
OCCUPATIONS					
649 ADMN, SUPERVISORY, MGT PERSNL ( 20%)					007 SURFACE GRINDING ( 4%)
M.W. DUNTON CO.					
NOKORODE SOLDERING PASTE	1	1	3	2 LBS.	
OCCUPATIONS					
649 ADMN, SUPERVISORY, MGT PERSNL ( 20%)					007 SURFACE GRINDING ( 4%)

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: ZIRCON

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					
DTE OIL AA	1	1	3	440 GALS.	
<hr/>					
OCCUPATIONS					(6) LOCATIONS
604 MECHANIC ( 33%)					007 SURFACE GRINDING ( 4%)
<hr/>					
RADIATOR SPECIALTY COMPANY					
LIQUID WRENCH PENETRANT	4	4	14	3 GALS.	
<hr/>					
OCCUPATIONS					(6) LOCATIONS
604 MECHANIC (100%)					007 SURFACE GRINDING ( 17%)
<hr/>					
RELTON CORPORATION					
RAPID TAP CUTTING FLUID	3	3	10	1 GALS.	
<hr/>					
OCCUPATIONS					(6) LOCATIONS
604 MECHANIC ( 67%)					005 SURFACE SHOP ( 60%)
<hr/>					
STOODY COMPANY					
STOODITE XMC	1	1	3	60 LBS.	
<hr/>					
OCCUPATIONS					(6) LOCATIONS
649 ADMN, SUPERVISORY, MGT PERSNL ( 20%)					005 SURFACE SHOP ( 20%)

TRADENAME PRODUCTS FOUND ON MINE PROPERTY

COMMODITY NAME: ZIRCON

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
VANCAR E	1	1	3	30 LBS.	005 SURFACE SHOP ( 20%)
-----					
OCCUPATIONS					
649 ADMN, SUPERVISORY, MGT PERSNL ( 20%)					

TEXACO, INC.

TEXACO MARFAK MULTIPURPOSE 2	1	1	3	240 LBS.	
-----					
OCCUPATIONS					(6) LOCATIONS
604 MECHANIC ( 33%)					007 SURFACE GRINDING ( 4%)

TEXACO MULTIFAK EP1

TEXACO MULTIFAK EP1	1	1	3	210 LBS.	
-----					
OCCUPATIONS					(6) LOCATIONS
604 MECHANIC ( 33%)					007 SURFACE GRINDING ( 4%)

UNITED ABRASIVES

SAIT A24N GRINDING DISC	5	5	17	5 LBS.	
-----					
OCCUPATIONS					(6) LOCATIONS
604 MECHANIC (100%)					005 SURFACE SHOP ( 60%) 007 SURFACE GRINDING ( 22%)

PHYSICAL AGENT CONDITIONS IDENTIFIED ON MINE PROPERTY

COMMODITY NAME: ZIRCON

PHYSICAL AGENT CONDITION	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)
NOISE	24	24	83

(5)  
OCCUPATIONS

179 BALL, ROD, PEBBLE MILL OPTR (100%)	379 DRYER OPTR; KILN OPTR (100%)	(6) LOCATIONS
604 MECHANIC (100%)	649 ADMN, SUPERVISORY, MGT PERSNL ( 80%)	006 SURFACE CRUSHING (100%)
782 FRONT-END LOADER OPTR (100%)	879 BAGGING OR PACKING WRKR (100%)	009 SURFACE MISC ( 50%)
		007 SURFACE GRINDING ( 96%)

TEMPERATURE (PROCESS RELATED)

12	12	41
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(5)  
OCCUPATIONS

379 DRYER OPTR; KILN OPTR (100%)	604 MECHANIC (100%)	(6) LOCATIONS
649 ADMN, SUPERVISORY, MGT PERSNL ( 60%)	879 BAGGING OR PACKING WRKR (100%)	009 SURFACE MISC ( 17%)
		007 SURFACE GRINDING ( 52%)

WHOLE BODY VIBRATION

21	21	72
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(5)  
OCCUPATIONS

179 BALL, ROD, PEBBLE MILL OPTR (100%)	379 DRYER OPTR; KILN OPTR (100%)	(6) LOCATIONS
649 ADMN, SUPERVISORY, MGT PERSNL ( 80%)	782 FRONT-END LOADER OPTR (100%)	006 SURFACE CRUSHING (100%)
879 BAGGING OR PACKING WRKR (100%)		009 SURFACE MISC ( 50%)
		007 SURFACE GRINDING ( 83%)

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

MUSCULOSKELETAL OVERLOAD CONDITIONS IDENTIFIED ON MINE PROPERTY

COMMODITY NAME: ZIRCON

	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(6) LOCATIONS
MUSCULOSKELETAL CONDITION				
AWKWARD LIFTING	2	2	7	(6) LOCATIONS 007 SURFACE GRINDING ( 9%)
OCCUPATIONS				
604 MECHANIC ( 67%)				
FOREARM, ARM, AND SHOULDER	9	9	31	(6) LOCATIONS 007 SURFACE GRINDING ( 39%)
OCCUPATIONS				
604 MECHANIC (100%)		649	ADMN, SUPERVISORY, MGT PERSNL ( 20%)	
879 BAGGING OR PACKING WRKR (100%)				
DIMINISHED LIGHT	20	20	69	(6) LOCATIONS 006 SURFACE CRUSHING (100%) 007 SURFACE GRINDING ( 87%)
OCCUPATIONS				
179 BALL, ROD, PEBBLE MILL OPTR (100%)		379	DRYER OPTR; KILN OPTR (100%)	
604 MECHANIC (100%)		649	ADMN, SUPERVISORY, MGT PERSNL ( 40%)	
879 BAGGING OR PACKING WRKR (100%)				
FINGER AND HANDS	5	5	17	(6) LOCATIONS 005 SURFACE SHOP (100%) 007 SURFACE GRINDING ( 22%)
OCCUPATIONS				
604 MECHANIC (100%)		649	ADMN, SUPERVISORY, MGT PERSNL ( 40%)	

MUSCULOSKELETAL OVERLOAD CONDITIONS IDENTIFIED ON MINE PROPERTY

COMMODITY NAME: ZIRCON

	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)
MUSCULOSKELETAL CONDITION	15	15	52
FREQUENT LIFTING			

(5)  
OCCUPATIONS

179 BALL, ROD, PEBBLE MILL OPTR (100%)  
879 BAGGING OR PACKING WRKR (100%)

379 DRYER OPTR; KILN OPTR (100%)

(6)  
LOCATIONS

006 SURFACE CRUSHING (100%)  
007 SURFACE GRINDING ( 26%)

HEAVY LIFTING

17

17

59

(5)  
OCCUPATIONS

179 BALL, ROD, PEBBLE MILL OPTR (100%)  
604 MECHANIC ( 67%)

379 DRYER OPTR; KILN OPTR (100%)  
879 BAGGING OR PACKING WRKR (100%)

(6)  
LOCATIONS

006 SURFACE CRUSHING (100%)  
007 SURFACE GRINDING ( 35%)

LOWER LIMB

5

5

17

(5)  
OCCUPATIONS

604 MECHANIC (100%)

649 ADMN, SUPERVISORY, MGT PERSNL ( 40%)

(6)  
LOCATIONS

005 SURFACE SHOP (100%)  
007 SURFACE GRINDING ( 22%)

NECK AND/OR BACK

22

22

76

(5)  
OCCUPATIONS

179 BALL, ROD, PEBBLE MILL OPTR (100%)

379 DRYER OPTR; KILN OPTR (100%)

(6)  
LOCATIONS

006 SURFACE CRUSHING (100%)

(CONTINUED NEXT PAGE)

MUSCULOSKELETAL OVERLOAD CONDITIONS IDENTIFIED ON MINE PROPERTY

COMMODITY NAME: ZIRCON

	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)
MUSCULOSKELETAL CONDITION	22	22	76
NECK AND/OR BACK (CONTINUED)			

(5)  
OCCUPATIONS

604 MECHANIC (100%)  
782 FRONT-END LOADER OPTR (100%)

649 ADMN, SUPERVISORY, MGT PERSNL ( 40%)  
879 BAGGING OR PACKING WRKR (100%)

(6)  
LOCATIONS

005 SURFACE SHOP (100%)  
009 SURFACE MISC ( 33%)  
007 SURFACE GRINDING ( 48%)

PRONE OR SUPINE LYING

2 2 7

(5)

OCCUPATIONS

604 MECHANIC ( 67%)

(6)

LOCATIONS

007 SURFACE GRINDING ( 9%)

WRIST

(5)

OCCUPATIONS

604 MECHANIC (100%)

649 ADMN, SUPERVISORY, MGT PERSNL ( 40%)

(6)

LOCATIONS

005 SURFACE SHOP (100%)  
007 SURFACE GRINDING ( 22%)

WELDING POTENTIAL EXPOSURE

COMMODITY NAME: ZIRCON

	(1) #WORKERS POTENTIALLY EXPOSED (OBSERVED)	(2) #WORKERS POTENTIALLY EXPOSED (PREDICTED)	(3) %WORKERS POTENTIALLY EXPOSED (PREDICTED)	(4) MGT PERSNL ( % )	(5) OCCUPATIONS	(6) LOCATIONS
WELDING PROCESS	5	5	17			
SHIELD METAL ARC WELDING						
-----						
OCCUPATIONS				649 ADMN, SUPERVISORY, MGT PERSNL ( 40% )		005 SURFACE SHOP (100%) 007 SURFACE GRINDING ( 22% )
604 MECHANIC (100%)						
-----						
OXYFUEL GAS CUTTING	5	5	17			
-----						
OCCUPATIONS				649 ADMN, SUPERVISORY, MGT PERSNL ( 40% )		005 SURFACE SHOP (100%) 007 SURFACE GRINDING ( 22% )
604 MECHANIC (100%)						
-----						
TORCH-SOLDERING	1	1	3			
-----						
OCCUPATIONS				649 ADMN, SUPERVISORY, MGT PERSNL ( 20% )		007 SURFACE GRINDING ( 4% )
649 ADMN, SUPERVISORY, MGT PERSNL ( 20% )						

<b>REPORT DOCUMENTATION PAGE</b>		1. REPORT NO.	2.	3. PB90-180738
4. Title and Subtitle National Occupational Health Survey of Mining. Zircon Report			5. Report Date 89/10/04	
7. Author(s) Anonymous			6.	
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			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				
<p>16. Abstract (Limit: 200 words) This report presented data from the National Occupational Health Survey of Mining (NOHSM) for the zircon commodity. The data were collected during a June 1987 survey of conditions at one zircon mine. 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. The information contained 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. Twenty one tradename products to which workers in the commodity were potentially exposed were listed. Potential exposures to noise, whole body vibration and process related temperatures existed. Potential exposures to ten musculoskeletal conditions were noted. Welding processes used included shield metal arc welding, oxyfuel gas cutting, and torch soldering.</p>				
17. Document Analysis a. Descriptors				
b. Identifiers/Open-Ended Terms NIOSH-Publication, Mining-industry, Noise-exposure, Vibration-exposure, Occupational-exposure, Ergonomics, Health-hazards, Mineral-deposits				
c. COSATI Field/Group				
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