

ENG-1020



E. I. DU PONT DE NEMOURS & COMPANY

WILMINGTON, DELAWARE 19890

ENGINEERING DEPARTMENT
October 10, 1977

SAFETY PERSONNEL

HAZARDOUS MATERIAL SAMPLING

In the past, several of you have requested a recap of the sampling results from the various Field sites. In an effort to reduce the volume, I am only including the results received by the Safety Office in the last two years.

Asbestos - 1977 Only

<u>JOB</u>	<u>RESULTS</u>	<u>REMARKS</u>
Removing asbestos insul.	0.09 fib/ml	Outside
Sweeping and bagging asbestos insul.	2.19 " "	Inside building - Copus blower in use
Applying coated asbestos cloth	0.01 " "	Inside insul. shop wall exhaust fan
Fabricate Danco insul.	0	Inside shop - doors open
Remove asbestos insul.	0.89 " "	Inside factory building - no ventilation
Fabricate asbes. insul.	0.01 " "	Inside shop - doors open
Sweeping and bagging insul.	0.50 " "	Inside building - no ventilation
Dismantling asbestos insul.	5 samples 0.09 fib/ml to 0.33 " "	Inside building - no ventilation
Fabricate asbestos insul.	0.003 " "	Insulation shop - doors open
Install asbestos cloth	0.15 " "	Inside shop - shop exhaust system

Cont'd.

DUP 0912979

DU 030068

October 10, 1977
Safety Personnel

Welding Study - Shop Area 1977

Arc	Weld	Base Metal	Weld Metal	Cr	Fe	O ₃	CO	CO ₂	Zn	Total Respirable Dust	Remarks
Heliarc	ST 308	ST-304L	0	0	-	0.2	-	500	-	6.8	No local ventilation
Metal Arc	7018	A-36	-	-	4.2	0	10	-	-	30.7	" "
Metal Arc	7018	A-36	-	-	5.3	0	-	8,000	-	30.3	" "
Heliarc	ST 308L	ST 304L	0	0	0.2	0	-	6,500	-	<.1	" "
Heliarc	Oxweld #1	Al06	0	0	0.02	0.05	0	400	0	4.3	Local exhaust
Radiograph	None	ST-304L	0.71	0.28	-	0	-	250	-	7.1	Inadequate ventilation
Spray Arc (Heliarc)	Cu Coated Wire	A-36	-	-	1.4	0.3	0	12,000	-	1.55	No local ventilation
Heliarc	6010	Gal. steel	-	-	2.95	0	9	4,250	5.6	13.8	" "
Heliarc	ST 309	A-139	.04	0	.13	.1	-	10,000	-	0.4	" "
Automatic MIG	Cu Coated	Gal. steel	0	0	.37	.1	10	500	0	5.9	" "
Metal Arc	7018	A-36	-	-	0	0	-	1,000	.029	9.09	Local exhaust not used
Metal Arc	6010	Gal. steel	-	-	0	-	-	-	1.57	3.8	" " used
Metal Arc	6010	A-36	0	0	0	-	-	-	.003	2.2	" " not used
Heliarc	4043AL	6061 AL	-	-	-	0	-	500	-	<.1	" " used
Metal Arc	6010	A-36	-	-	-	0	-	10,000	-	3.8	" "
Heliarc	ST 300	Gal. steel	-	-	-	0	-	500	-	<.1	" "

DUP 0912980

3
October 10, 1977
Safety Personnel

Welding Study - Shop Area - 1977 - Cont'd.

Arc	Rod	Base Metal	mg/m ³ Ni	mg/m ³ Cr	mg/m ³ FeO	ppm O ₃	ppm CO	ppm CO ₂	mg/m ³ Zn	Total Respirable Dust mg/m ³	Remarks
Acetylene Cutting	NA	1020	-	-	0.1	0	20	5,000	-	4.4	Local exhaust used
Metal Arc	7018	A-36	-	-	-	0	0	-	-	1.18	"
Metal Arc	7016	A-106	-	-	-	-	0	-	-	<.1	"
Metal Arc	7016	1040	-	-	-	-	-	-	-	<.1	"
Helicarc	Steel	Steel	-	-	-	0	-	15,000	-	-	"
Plasma Arc	None	304L	-	-	-	.05	90	2,000	-	4.72	"
Helicarc	108 ST	308 ST	-	-	.08	.04	-	5,000	-	<.1	not used.

Welding and Cutting Fume Study - 1975

Arc	Base Metal	NO _x	ppm CO	ppm O ₃	Local exhaust used	Remarks
Plasma Arc	Stainless Steel	16	9	.05	"	"
"	"	5	9	.05	"	"
"	"	21	9	.05	"	not used
"	"	17	-	.05	"	"
"	"	87	14	0	"	"
"	Aluminum	31	9	.05	Local exhaust used	"
"	"	39	9	0	"	not used
"	Carbon Steel	13	-	.05	"	used

DU 030070

4
October 10, 1977
Safety Personnel

Welding and Cutting Pume Study - 1975 - Cont'd.

Arc	Base Metal	NO _x ^a	ppm CO	ppm O ₃	Remarks
Plasma Arc	Carbon Steel	30	12	.03	Local exhaust used
Metal Arc	" "	0.4	5	.005	" " "
" "	" "	7	2	.005	" " not used
" "	Stainless Steel	3	3	.02	" " "
" "	Galv. Steel	4	3	.01	" " "
TIG Welder	Stainless Steel	1	2	.02	Local exhaust used
" "	" "	7	-	.01	" " not used

^aNO and NO₂

Abrasive Grinding Dust Study - 1975

Grinder Type	Wheel	Exhaust System Filter		Sample Results mg/m ³	Material Being Ground	
		Yes	No		Wet	Dry
Pedestal	6" O" Al. Oxide		X	<1	Carbon steel - Dry	
"	" " "		X	<1	" " "	
"	" " "		X	<1	Stainless Steel - Dry	
"	" " "		X	<1	Breathing zone air	
					Samples on carbon steel - dry	
Portable Disc	Disc - resin cloth		X	<1	Steel - aluminum - dry	
"	" " "		X	<1	Steel - dry - breathing zone	
"	" " "		X	<1	Alum. - dry - breathing zone	
"	" " "		X	<1	Aluminum - dry	

DU 030071

October 10, 1977
Safety Personnel

Abrasive Grinding Dust Study - 1975 - Cont'd.

Grinder Type	Wheel	Exhaust System		Sample Results mg/m ³	Material Being Ground Wet - Dry
		Yes	No	Filter Yes No	
Pedestal Grinder 6" Al. Oxide					
"	"	X		X	Carbon steel - Dry
"	"	X		X	"
"	"	X		X	Tungsten steel - dry breathing zone
"	"	X		X	Tungsten steel - dry breathing zone
Portable Disc	Aluminum Oxide resin disc				
"	"	X		X	Stainless steel - dry breathing zone
"	"	X		X	Stainless steel 3" from grinder
"	"	X		X	Stainless steel 1.5" from grinder
"	"	X		X	Stainless steel - 11" from grinder downward
Bench grinder	A Corundum				
"	"	X		X	Stainless steel - dry
"	"	X		X	Iron - dry
"	"	X		X	Stainless steel - dry
"	"	X		X	Tool steel - dry
"	"	X		X	Carbon steel - dry
"	"	X		X	Stainless steel - dry breathing zone
"	"	X		X	Stainless steel - dry
"	Alum. Oxide	X		X	Iron - dry
"	"	X		X	Stainless steel - dry
"	"	X		X	Tool steel - dry
"	"	X		X	Stainless steel - dry

DUP 0912983

6
October 10, 1977
Safety Personnel

Abrasive Grinder Dust Study - 1975 - Cont'd.

Grinder Type	Wheel	Exhaust System		Sample Results mg/m ³	Material Being Ground Wet - Dry
		Yes	No		
Bench grinder	Alum. Oxide	X	X	< 1	Stainless steel - dry breathing zone
Pedestal	Alum. Oxide	X	X	< 1	Stainless steel - dry
"	"	X	X	< 1	"
"	"	X	X	< 1	C.S. pipe - dry
"	"	X	X	< 1	C.S. pipe - dry breathing zone
"	"	X	X	< 1	Titanium stainless steel - dry breathing zone
"	"	X	X	< 1	"
"	"	X	X	< 1	"
"	"	X	X	< 1	"

Dowtherm "A" Study - Test Area

Sample	Location	Concentration mg/m ³	Remarks
#1	4 meters away from test area	8.84	Open bucket of dow in room - wall exhaust fan only
#2	At test area	9.52	"
#3	5 meters away from test area	9.49	"
#4	At dow boiler operating station	12.40	"
#5	Adjacent to test area	7.92	"

DU 030073

7
October 10, 1977
Safety Personnel

Grinding operation using oil mist
Oil mist concentration study 1976

Sample Number	Location	Concentration mg/m^3	Remarks
1	In breathing zone at machine	4.0	

Tungsten Carbide bit grinding 1976

Dust Study

Sample	Location	Concentration mg/m^3		Remarks
		Tungsten	Cobalt Aluminum	
#1	Breathing zone of operator at grinder	0.1	.009	- Normal bit grinding operation
#2	" " "	< 0.1	< .005	" " "
#3	" " "	0.5	0.070	- Heavy grinding
#4	" " "	-	-	0.01 Normal bit grinding operation
#5	" " "	-	-	0.04 " " "

1.1.1 Trichloroethane Sampling
Degreasing Tank

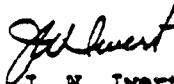
Sample	Location	Concentration ppm	Remarks
#1	20" above tank	150	Shop fabricated tank
#2	" " "	250	w/o seal or
#3	Inside top edge of tank	700	exhaust system.

8
October 10, 1977
Safety Personnel

We have established a new log for hazardous material sampling (copy attached). Any sampling done at your site involving potential exposure to Construction Division or contractors' employees performing work on contracts administered by the Division will be entered on this log and submitted to the Safety Office with your Monthly Fire and Safety Data Log. Our intent is to maintain sampling records for 30 years. You have the option of sending us the record of your sampling when you get it or we will get your records when the site closes out by including a statement in the Construction Division "HOW" that requires this information be sent to the Safety Office.

If you have any questions concerning the sampling result recap or the Material Sampling Log, please let me know.

CONSTRUCTION DIVISION


J. W. Iwert
Division Safety Engineer

JWI:js
Attachment

DUF 0912986

DU 030075

YEAH

MATERIAL SAMPLING LOG

DUP 0912987