REPORT ON PRELIMINARY SURVEY OF LOWE BROS. COMPANY PLANT

A preliminary survey of the Lowe Bros. Company plant was made on April 29. As a result of this inspection plus information which was freely given by the technical staff of the company, a chart which lists the indicated studies has been prepared. Due to the complex nature of the solvent and thinner problem, i. e. wide variety of materials handled and substitutions due to scarcities, only the more toxic materials have been chosen for study. Some tests are indicated for less toxic materials merely as a control measure, since we believe that some knowledge should be available as to their magnitude in the working areas.

The indicated study would have to be spread over an extended period, certain phases being handled only after careful planning in order to get representative exposure. Thus it might be wise to delay some studies until such time that regularly used materials are again available, since the latter would more nearly represent the normal long-term working conditions. Substituted materials might be included if their toxicities warrant the study and if the quantities are large and if it is expected that they must be used over a considerable period of time. Therefore, it will be noted that an additional ten per cent has been added to the actual tests listed in the chart. This will permit the inclusion of such special samples as noted above or permit the taking of certain other samples as may be required by changing conditions.

It would be best to start the survey with the lead, dust, and silica studies and to follow these up with the other phases during such periods when management expects the operations to be normal.

In addition to these studies of the fume and dust, certain of the men who appear to have the most hazardous exposures should have limited clinical studies.

The operators exposed to benzol and ethylene dichloride in the compounding of paint remover, and the men accustomed to filling the paint remover containers, should be carefully examined for evidence of aplastic anemia. The following men should have blood and urine examinations for lead: 5 paint mixers in Building 4 with longest service, the mixers in the lacquer plant, and all car unloading and warehouse workers. The following men should have stereo chest X-rays for pneumonokoniosis: all car unloading and warehouse workers.

These clinical studies are in the nature of a sampling survey. It should not be inferred that we would consider such limited studies on so few men as providing adequate medical supervision of the plant.

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May 3, 1946

PROJECTED STUDY AT LOWE BROS. COMPANY PLANT

Source or Department	Description of Sample	Determination	Number	
Paint Remover				
Paint remover compounding	Air	Benzol (100)	3)	Test blen
Paint remover compounding	Air	Ethylene Dichloride (100)	3)	oper be m this
Lacquer thinner blending	Air	Ethyl Acetate (or substitute) (100-400)	2)	One stit fore
Lacquer thinner blending	Air	Aromatics (Xylol, Toluol, etc.) (100-200)	1)	atio pain used
Lacquer thinner blending	Air	Butyl Alcohol (50)	-)	case toxi
Lacquer thinner blending	Air	Acetone (200-500)	2)	

Discussion: The room used for above purposes is about 20 x 1½ x 15 feet and contai one 45 gallon mixing tank for compounding paint remover two to three times per week filling operations last all day. Lacquer thinner is blended in two 350 gallon tank lacquer thinner storage tanks in the lacquer plant. Blending is a daily operation. remover tanks are provided with exhaust systems. Lacquer thinner blending tanks ar tops, but air is displaced into the room. One of the difficulties in determining j test is due to substitution as a result of shortages. Formulae are changed dependi and the need for testing these compounds should depend on the projected length of u marked in parentheses under "determination" give ranges which cover the substitute is acetone (500); butanone, a substitute for butyl acetate, 200. In making a keton ketones would be lumped and figured as the most toxic. The same would apply for th aromatics or various substitutes encountered in other departments.

Projected Study at Lowe Bros. Company Plant continued

Source or Department	Description of Sample	Determination	Number	
Varnish Works				
Varnish boiling	Air	Acrolein (1)	5	Acre made cat: ing oil: imm the exh
Varnish boiling	Air	Maleic Anhydride)	1	Lit anh cou tha
Varnish boiling	Air	Phthalic Anhydride)		
Thinning room	Air	Aromatics (200) (Xylol, Toluol)	4	Two of gen bui ket
Filtering and clarifying	Air	Aromatics (200) (Xylol, Toluol)	5	Two whi fyi con the ele
Filling cans and drums	Air	Aromatics (200) (Xylol, Toluol)	4	Two lev ate
Filling cans and drums	Air	Petroleum (300)	2	One ope of

Discussion: The acrolein hazard is said to be most pronounced on windy days when ba stack gases back into the working area. Frequent eye irritations occur on such days survey no unpleasant odor or eye irritation was noted. The anhydride hazard is said dust masks. A dusty atmosphere is produced in resin grinding. This operation is ca in an open shed for a total of about 2 hours daily. Men wear dust masks and therefo

Projected Study at Lowe Bros. Company Plant continued

Source or Department	Description of Sample	Determination	Number	
Lacquer and Enamel Plant				
Color mixing	Electrostatic Precipitator	Lead (0.15 mg./M³) Dust Count	1) 1)	Whil
Color mixing	Dust	Toluidine (20 mg./M³)	1	Whil
White color mixing	Electrostatic Precipitator	Lead Dust Count	1) 1)	Whil gene
Ball Mill	Electrostatic Precipitator	Lead (0.15 mg./M³) Dust Count	1) 1)	Prin oper
Loading	Dust	Free Silica	1	Prin oper
Thinning and blending)) Filling)	Air	Xylol, Toluol (200) Acetates	5)) 5)	Gene ing vari spac vent
Small batch operation section (thinning, shading, and filling)	Air	Xylol, Toluol Acetates	5) 5)	Manu or l
Handy agitator and shading tanks	Air	Xylol, Toluol Acetate	2) 2)	Same
Ball mills	Air	Xylol, Toluol Acetate	2) 2)	Befo oper

Discussion: In this plant, mixing operations are intermittent and consist of small capacity of the two large pony mixers being 30 gallons each. The room is exhausted, of equipment are not. The chief hazard is dust. The same intermittent hazard occu mills. Thinning, blending, and filling is carried out in two areas. Larger tanks, capacity are handled from same floor level as that on which the ball mills are loca contains one roller mill provided with a canopy exhaust to remove xylol. The tanks fume stack, are covered, but vapors are free to escape into room. A definite acet The shading, thinning, and filling room, 30' x 30' in area, has many open drums of over the floor and the acetate odor was much more marked than on the floor below (t

KE 0003851

Location of Work	Description of Article	Determination	Number	

Lacquer and Enamel Plant (Occasion continued

All operations are manual and dry material, such as nitrocellulose or asbestos, ot tanks through hinged doors in the wood tops laid over the tanks. Thinner vapors a room atmosphere. Dust exposures in the shading and filling room are of short durat there is no need to study this exposure here. The handy agitator and shading tank vapors and the area should be studied as indicated above. The thinner storage roo are not included in this study since exposure to personnel is very limited in thes

Color Card Division

Painting and drying	Air	Xylol	2	Two one er rol
Painting and drying	Air	Benzine (500)	1	One the
Shading	Air	Xylol	1	Cen of

Discussion: No attention need be given the spray booth or the drying room for car the booth. Exposures in the card drying room are very short. Exposures in the rol tinuous during the afternoons of card painting.

Paint and Enamel Building #1

Paint mixing	Electrostatic Precipitator	Lead	15)	Vari
		Dust Counts	15)	spac
Paint mixing	After Dust	(Lead	2)	All
		(Free Silica	2)	prov
				coat
				Dis
				Pe
				of t
				Curi
				shou
				Tes

Source or Department	Description of Sample	Determination	Number	
Paint and Enamel Building #1 continued				
Paint grinding	Air	Xylol Benzine	1) 1))))))	Dep use gro Ben be pos is
Thinning, shading, and filling	Air	Thinner (Xylol or Benzine)	10	Dep mat sho to at ty. ope esp
Small order plant	Air	Thinner exposure	2	Sam sho
Tool cleaning	Air	Benzine	1	Con mat

Discussion: The chief hazard in the paint and enamel division appeared to be that bearing and siliceous. Although each mixer is locally exhausted, it seems advisab samples to check their efficiency and to compare with results obtained in an earli exhaust system had been installed. It was noticed that canopy and lateral exhaust and it might be wise, if equally sized mixers can be tested, to compare these two Sacks being thrown on pile near baling machine were seen to give rise to dust clou persed about the mixing room. Thinner odors were not uncomfortable, but the magni area should be obtained as a control for future reference and to test levels while normal conditions.

Projected Study at Lowe Bros. Company Plant continued

Source or Department	Description of Sample	Determination	Number	
Car Unloading and Storage				
Car unloading	Electrostatic Precipitator	Lead	2	Only bein
Car unloading	Electrostatic Precipitator	Dust Count	5	Shou of b
Car unloading	Dust	Silica	2	For comp
Warehouse	Electrostatic Precipitator	Lead Dust	2) 2)	Duri movi
Warehouse	Rafter dust	Lead	2)	
Warehouse	Rafter dust	Silica	1)	
Storage in basement of paint building	Electrostatic Precipitator	Lead	2)	
Storage in basement of paint building	Electrostatic Precipitator	Dust Count	2)	Duri bagg
Storage in basement of paint building	Dust	Silica	1)	

Discussion: The hazard here is chiefly dust and lead from leaded zinc. Post mater moving of broken bags, sweeping, etc. will give rise to dusty conditions. Fan use the hazard should be checked. Storage in basement of paint building gave evidence Little dust is generated here because materials are stacked on skids which are move house was not inspected, but information indicates that movement of bagged material area gives rise to dusty conditions since no skids are used and bags must be manual

Summary of Indicated Chemical Analyses

Solvent or other vaporous exposures	79
Maleic and phthalic anhydrides	1
Toluidine	1
Lead	28
Dust Counts	29
Free silica	7
Total	145
10 per cent margin to cover unforeseen problems, etc.	14
Grand Total	