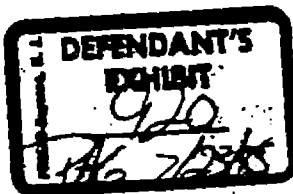


CHLOROPHENOLS DEPARTMENT 237

INDUSTRIAL HYGIENE MANUAL

DECEMBER, 1979



Prepared by: Paul Easterday,
Phil Kirk

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CHLOROPHENOLS DEPARTMENT
INDUSTRIAL HYGIENE MANUAL

This manual will serve as an introduction to the chlorophenols department industrial hygiene program for operator training. It will cover some of the engineering controls designed into the production facility, give you information about the nature of the chemicals used in the department and describe some of the work practices that will be used in the department.

Phil Kirk
December, 1979

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Health Hazards - General

Exposure to hazardous chemicals affect people in two ways: acute effects and chronic effects. Acute effects are the very rapid effects from a high concentration for a short period of time. These effects occur quite quickly and are easily recognized. Materials like chlorine, and hydrochloric acid produce unpleasant acute effects which force one to take immediate action to avoid their consequences. Acute effects generally subside quite quickly after one is removed from the exposure and in most cases, the individual recovers completely with suitable treatment. The time required and the completeness of recovery, from an acute exposure, depends on the severity of the exposure, the material he or she was exposed to, and the individual.

Chronic effects are the result of either long term low exposure or frequent acute exposures. They may take a long time to develop, they may not be easy to recognize and recovery usually takes an extended period of time.

Two good examples of acute and chronic effects are smoking tobacco and drinking alcohol. You have either experienced it yourself or have seen someone else experience the acute effects of your first smoke or too much to drink. These effects are very unpleasant at the time, but one recovers quite quickly their effects. It takes many years before the chronic effects of emphysema, heart trouble and lung cancer from smoking, or high blood pressure and liver damage from alcohol to develop. In addition, these symptoms don't develop

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in everyone so one can't be sure if drinking and smoking will
effect them in this way. If and when they do occur, it is
difficult to treat them, with recovery slow and perhaps never
complete.

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Health Hazards - Specific

Hazards for phenol, chlorine and specific chlorophenols are described in Appendix E. Chlorophenols may contain a minute quantity of impurities known as chlorinated dibenzo dioxins ("dioxins"). Special mention is made of these substances as there has been much concern by environmentalists and government officials over their potential health hazards.

To date, very little is known concerning the potential toxicity of dioxins although it is known that exposure to dioxins may result in a skin condition called chloracne. Some reversible liver effects have also been reported. Thus all operators are urged to follow good industrial hygiene practices as outlined in this manual.

Attached also are the results of the Nitro Plant mortality study related to dioxins.

- (1) References: Dow Finds Support, Doubt for Dioxin ideas, Rebecca L. Rawls, Feb. 12, 1979, C&E News.

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