

APPENDIX C

CHEMICALS USED IN CLANDESTINE DRUG LABS

You must exercise extreme caution when operating at the scene of an illegal drug lab. Do not walk into, touch, or move chemicals or spilled material. Avoid inhaling fumes, smoke, and vapors, even if it is not known if chemicals are involved. Never assume that gases or vapors are harmless because they do not have an odor.

Table B-1, pp. 197-201, is similar to a table found in the Oregon State Fire Marshal's *Student Manual for Hazardous Materials Technician I Certification*. Additional information on chemicals associated with drug lab operations was taken from the Sacramento Fire Department's *Hazardous Material Response Team Operations and Policies*.

Any of the listed chemicals may be found in or around a clandestine drug lab. Many are explosive, toxic, and/or flammable. All details of the listed chemicals are not known, and all chemicals that may be found on a scene are not contained in the list. Assume any chemical found in a drug lab is hazardous.

The following resources and definitions will assist you in identifying the dangers of chemicals in an illegal drug lab:

- U.S. Department of Transportation (DOT) Emergency Response Guidebook (ERG) Number: If you know the name of the product, look in the alphabetical index for the ERG number. Turn to the numbered guide page, read carefully, and proceed as recommended.
- United Nations (UN) Identification Number: If you do not know the name of the product, use the UN number as a cross-reference in the *Emergency Response Guidebook* to the ERG number. Again, turn to the numbered guide page, read carefully, and proceed as recommended.
- Hazard Identification: The hazard identification number is based on the National Fire Protection Association's (NFPA) 704, *Standard System for the Identification of the Fire Hazards of Materials* (1985). Material hazards are rated according to the three categories of health, flammability, and reactivity. The severity of danger for each category ranges from 0 (no danger) to 4 (severe hazard).
- Explosive, Poisonous, Corrosive: If a chemical is labeled with one of these terms, turn to the numbered guide page of the chemical in the ERG, read carefully, and proceed as recommended.
- Precursor: A substance that is the source of another substance. Precursors are used to create chemical compounds that cannot be obtained legitimately.
- Solvent: A substance that dissolves another substance. Solvents "wash" chemical compounds produced during the stages of the conversion process.
- Reagent: A substance used in a chemical reaction.

Every emergency vehicle should have a current edition of the *Emergency Response Guidebook*. The information in this book can save your life, not only during an incident at a drug lab, but at any incident involving chemicals and other hazardous materials.

If your organization has not received free copies of the ERG from your state or local distribution center, call the Hazardous Materials Information Exchange to obtain the telephone number of your state coordinator. The toll free number for the exchange is 1-800-752-6367. In Illinois, call 1-800-367-9562.

TABLE B-1

Chemicals used in clandestine drug labs

Chemical	UN #	ERG #	Health hazard rating	Flammability hazard rating	Reactivity hazard rating	Explosive	Poison	Corrosive	Precursor	Solvent	Reagent	Comments
Acetaldehyde (Ethanal)	1089	26	2	4	2	*	*	*	*			
Acetic acid	1842	29	2	2	1	*	*	*		*		
Acetic acid ethyl ester (Ethyl acetate)	1173	26	1	3	0	*	*		*			
Acetic anhydride	1715	39	2	2	1	*	*	*	*			Avoid water, caustics, and alcohol.
Acetonitrile (Ethanenitrile)	1648	28	2	3	0	*	*	*	*			
Aluminum chloride, anhydrous	1726	39	3	0	2		*	*			*	Avoid water; rubber overclothing required.
Ammonia, anhydrous	1005	15	2	1	0		*	*	*			
Ammonium acetate	9079	31	-	-	-			*	*			Produces poison gas while burning.
Ammonium chloride	9085	31	2	0	0			*	*			Produces poison gas while burning.
Ammonium hydroxide (Household ammonia)	2672	60	-	-	-		*	*	*			
Anhydrous hydriodic acid (Hydrogen iodide)	2197	15	3	0	0		*	*			*	
Benzene	1114	27	2	3	0	*	*	*	*			Suspected carcinogen.
Benzeneacetonitrile (Benzyl cyanide)	-	-	-	-	-	*	*	*	*			Suspected carcinogen.
Benzenesulfonyl chloride	2225	59	-	-	-		*				*	Suspected carcinogen.
Boron trifluoride	1008	15	3	0	1		*	*			*	
Bromobenzene	2514	26	-	-	-	*	*				*	Suspected carcinogen.
2-Butanone (Methyl ethyl ketone)	1193	26	1	3	0	*	*	*	*			
Calcium hydroxide (Slaked lime)	-	-	-	-	-						*	

Chemical	UN #	ERG #	Health hazard rating	Flammability hazard rating	Reactivity hazard rating	Explosive	Poison	Corrosive	Precursor	Solvent	Reagent	Comments
(Chloromethyl)benzene (Benzyl chloride)	1738	59	2	2	1		*				*	Suspected carcinogen.
1-Chloro-2-propanone (Chloroacetone)	1695	56	-	-	-	*	*	*	*			
Copper sulfate	-	-	-	-	-						*	
Cyclohexanone	1915	26	1	2	0	*	*	*			*	
<i>N,N</i> -Diethylethanamine (Triethylamine)	1296	68	2	3	0		*	*			*	Produces poison gas while burning; rubber overclothing required.
<i>N,N</i> -Dimethylformamide	2265	26	1	2	0	*	*	*				Essential for drug production.
Ethanamine (Ethylamine)	1036	68	3	4	0	*	*				*	
Ethanedioic acid (Oxalic acid)	-	-	2	1	0		*	*			*	Rubber overclothing required.
Ethanol (Ethyl alcohol)	1170	26	0	3	0	*	*	*		*		
Formaldehyde solution (Formalin)	1198	29	2	2	0	*	*	*		*		Suspected carcinogen.
Formamide	-	-	-	-	-							Essential for drug production.
Formic acid (Methanoic acid)	1779	60	3	2	0		*	*			*	Produces poison gas while burning; rubber overclothing required.
Hexane	1208	27	1	3	0	*	*			*		
Hydrochloric acid	1789	60	3	0	0		*	*			*	Produces poison gas while burning.
Hydrocyanic acid (Hydrogen cyanide)	1051	13	4	4	2	*	*				*	
Hydrogen, gaseous	1049	22	0	4	0	*	*				*	
Iodine	-	-	-	-	-		*	*	*			
Lead acetate	1616	53	-	-	-		*		*			Rubber overclothing

Chemical	UN #	ERG #	Health hazard rating	Flammability hazard rating	Reactivity hazard rating	Explosive	Poison	Corrosive	Precursor	Solvent	Reagent	Comments
Lithium aluminum hydride	1410	40	3	1	2	*	*	*			*	Avoid water; rubber overclothing required.
Mercuric chloride	1624	53	-	-	-		*				*	Rubber overclothing required.
Methanamine (Methylamine)	1061	19	3	4	0	*	*	*	*		*	
Methanamine, anhydrous (Methylamine, anhydrous)	1061	19	3	4	0			*	*			Produces poison gas while burning.
Methanol (Methyl alcohol)	1230	28	1	3	0	*	*	*		*		
α -[1-(Methylamino) ethyl] benzene-methanol (Ephedrine)	-	-	-	-	-				*			Suspected carcinogen.
Methylbenzene (Toluene)	1294	27	2	3	0	*	*	*		*		Suspected carcinogen.
Morpholine (Diethylene imidoxide)	2054	29	2	3	0						*	
Nitric acid, nonfuming, concentration >40%	2031	44	3	0	0		*	*			*	Produces poison gas while burning; chemical protective suit required.
Nitroethane	2842	26	1	3	3	*	*	*	*			Produces poison gas while burning.
1,1'-Oxybisethane (Ethyl ether)	1155	26	2	4	1	*	*	*		*		
Oxybismethane (Dimethyl ether)	1039	26	2	4	1	*	*	*		*		
Phenyl-2-propanone (P2P)	-	26	1	3	0		*	*	*			Classified as a controlled substance.
Phosphoric acid	1805	60	2	0	0			*			*	
Phosphorus pentachloride	1086	39	-	-	-		*	*			*	Avoid water.

Chemical	UN #	ERG #	Health hazard rating	Flammability hazard rating	Reactivity hazard rating	Explosive	Poison	Corrosive	Precursor	Solvent	Reagent	Comments
Phosphorus trichloride	-	-	-	-	-			*			*	Avoid water.
Phosphoryl chloride (Phosphorus oxychloride)	1810	39	3	0	2		*	*			*	Avoid water.
Piperidine (Hexahydropyridine)	2401	29	-	-	-						*	
Potassium hydroxide	1813	60	3	0	1		*	*			*	
2-Propanol (Isopropyl alcohol)	1219	26	1	3	0	*	*	*		*		
2-Propanone (Acetone)	1090	26	1	3	0	*	*	*		*		
Pyridine	1282	26	2	3	0	*	*	*			*	Suspected carcinogen; chemical protective suit required.
Pyrrolidine	1922	29	-	-	-						*	Highly flammable.
Sodium	1428	40	3	1	2							Avoid water; rubber overclothing required.
Sodium acetate	-	-	-	-	-						*	
Sodium amalgam	1424	40	-	-	-	*	*	*			*	Avoid water.
Sodium bisulfate, solid	1821	60	-	-	-		*	*			*	Produces poison gas while burning.
Sodium hydroxide, dry, solid (Draino)	1823	60	3	0	1		*	*				Produces poison gas while burning; rubber overclothing required.
Sulfuric acid	1830	39	3	0	2		*	*			*	Reacts violently with water; rubber overclothing required.
Tetrachloromethane (Carbon tetrachloride)	1846	55	3	0	0		*	*			*	Produces poison gas while burning.

Chemical	UN #	ERG #	Health hazard rating	Flammability hazard rating	Reactivity hazard rating	Explosive	Poison	Corrosive	Precursor	Solvent	Reagent	Comments
Thionyl chloride	1836	39	3	0	2		*	*			*	Reacts violently with water; rubber overclothing required.
Thorium nitrate, solid	9171	64	1	0	0		*	*			*	Chemical is radioactive; produces poison gas while burning.
<i>o</i> -Toluidine	1708	55	3	2	0		*				*	
Trichloromethane (Chloroform)	1888	55	2	0	0		*	*		*		Produces poison gas while burning.
Zinc	-	-	0	1	1						*	Used as a catalyst in the reaction.

Dashed entries (-) = information not available.

Modified from Oregon State Fire Marshal's Training Bureau.