Sulfuric Acid and Hydrochloric Acid, by Emergency Film Group, Plymouth, MA, Hazchem Series No. 1, Video Tape, 26 min, $395.00

Designed by a firm whose business is emergency response training, this video tape describes, for these two acids (according to the descriptive material accompanying the tape):

- How to identify corrosive acids
- Hazards
- Where they are found
- Reactivity problems
- Why water may be dangerous
- Proper protective clothing
- Stemming the flow of product
- Neutralization operations
- Emergency medical treatment
- Decontamination
- Environmental concerns

The film begins with a view of several types of emergencies and the need for safe, effective response — creating, as I note, "the need to know" or "the desire to learn". Clearly, these chemicals are important products of the chemical industry with 1991 U.S. production levels being:

H_2SO_4: 89 billion pounds
HCl: 5 billion pounds

Next the film graphically illustrates the destructive properties of sulfuric acid by showing its effect on chicken skin — the effects are obvious, the skin is destroyed. Then its uses are described — and they are many. Consequently, it is transported by all modes — truck, barge and rail.

Hydrochloric acid is then described. Its major differences from sulfuric acid are that it is volatile and it attacks all metals except precious metals. It, too, has numerous uses.

Both acids are toxic; both acids can be fatal. Using the NFPA guide, one finds the following ratings:

	H_2SO_4	HCl
Health	3	3
Flammability	0	0
Reactivity	2	0
Special	—	—

HCl is stable, but in contact with metals it can form an explosive hydrogen atmosphere. H_2SO_4 can generate heat in contact with many chemicals — sodium hydroxide, for example, but even water contact generates heat. Both the liquid and vapor of these acids are corrosive. Severe skin burns can result from exposure.

Shipping information, including a description of the containers, is given as DOT numbers (all are corrosives) as follows:

Type of acid	*DOT shipping number*
Sulfuric acid	1830
Spent sulfuric acid	1832
Battery acid	2796
Hydrochloric acid	1789

Proper storage, marking, protection from water, oxidation and other reactive chemicals are described. Diking and leak detection are shown, and proper personal protective clothing for working with these chemicals is also described. Illustrated next are the proper procedures for loading/loading.

But accidents may still occur, even though all proper precautions are taken. The problem is illustrated graphically by pictures from a spill/gas evolution resulting from reacting mixtures of waste acids in California. Evacuation, response and damage are shown.

The response procedures for a major spill are then shown:

- Evacuation
- Identification
- Control – the need for acid resistant clothing (Level A protection)
- Decontamination
- Search and rescue
- Discharge control
- Diking
- Vapor control
- Adsorption (fly ash, for example)
- Disposal of adsorbent
- Neutralization: soda acid, soda bicarbonate

Neither material burns, but they could contaminate firewater runoff. Removal of acid containers from fire exposure is best. Small fires can be controlled with CO_2, but if water is required (for a large fire) it should be applied from a distance.

Decontamination after the incident is described for protective clothing. (After exposure to acids, leather is useless, the video notes.) Victim symptoms and treatment are shown. You are advised to wash quickly and thoroughly. Oxygen may be used.

Next comes monitoring methods — by vapor tube, pH meter and pH paper. Waste disposal, with its legal reporting requirements is noted.

My reaction to the video is very favorable. All the necessary information is there and it is well described. This film is well worth using in training.

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