TOXICITY STATEMENT
THERMINOL FR-1
HEAT TRANSFER LIQUID

In appropriate animal toxicity studies, the rat oral LD50 for this product has been found to be approximately 8650 mg/kg of body weight. When applied to the unbroken skin of rabbits, the lethal dose is approximately 1,000 mg/kg. We believe these data indicate that Therminol FR-1 is not particularly toxic if accidentally ingested. On the other hand, it is moderately toxic if there is prolonged and repeated skin contact.

Laboratory animals survived single six hour exposure to atmospheres saturated with vapors at ambient temperature. This was undoubtedly the case because of the low volatility which limits the atmospheric concentration at room temperature.

On the other hand, when the fluid is used in a heat transfer system where the temperature is obviously going to be elevated the system should be made leak proof so that there will not be the possibility of continuing release of vapors from the hot fluid itself or because of the fluid leaking on the heated metal. This does not present a serious hazard from the standpoint of a single occurrence such as might occur if a line ruptured or if there was an accidental short term leak. Under such circumstances the concentration of vapors would be expected to be such that irritation and discomfort would prevent voluntary exposure for a period to cause any ill effects beyond the transient symptom of irritation possibly followed by nausea and headache if the exposure is for sufficient duration. The American Industrial Hygiene Association's maximum recommended atmospheric concentration for Therminol FR-1 is 1 mg per cubic meter.

Skin contact with Therminol FR-1 at normal temperatures does not present a hazard in terms of immediate or subsequent systemic effects if normal personal hygiene practices are followed. In other words, if there is massive skin exposure, workmen should, within a reasonable time, remove contaminated clothing and bathe thoroughly.

Daily skin contact should be avoided in order to prevent possible irritation to the skin and possible systemic effects. Again, normal personal hygiene should suffice as long as it is understood that workmen must not smear the liquid on the skin and allow it to remain. Prolonged and repreated skin exposure to the fluid may result in a solvent action on the skin followed by drying, chapping and cracking.

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In heat transfer systems, no acute detrimental effects on personnel would be expected during the normal handling and recommended use of the fluid. This includes pouring or pumping the fluid from the original container to the system at ambient temperature. When used in a properly designed system, there should be no leaks or opportunity for escape of vapors at elevated temperatures. The only opening from the system to the atmosphere should be from the "hold" or reservoir tank, and obviously this should be vented to the outdoor atmosphere rather than within any building.

Because these chlorinated materials have displayed a persistence in nature and have entered our food chain, we no longer recommend they be used as heat transfer fluids in food process applications. The Food & Drug Administration has issued a guideline regarding the maximum concentration of polychlorinated biphenyl (PCB) in milk to be 0.2 ppm and in other food to be 5.0 ppm. This is not a regulation but simply a guide for various testing agencies to use in judging when a food product may be classed as contamined with PCB.

MEDICAL DEPARTMENT

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