

Monsanto

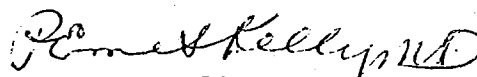
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TOXICITY AND SAFE HANDLING OF THERMINOL FR-1, FR-2, AND FR-3

On the basis of animal toxicity studies, the Terminols may be considered only slightly toxic from the standpoint of accidental ingestion or a single accidental massive skin exposure. Similarly, single exposures to high concentrations of vapors (when heated sufficiently to volatilize) or high concentrations of decomposition products (if the fluid is accidentally discharged into the fire chamber) are not serious hazards because the irritating character of such concentrations preclude voluntary exposure.

Repeated or prolonged skin exposure should be avoided since the Therminol fluids act as solvents for fats and oils of the skin. Removal of these natural, protective barriers can lead to drying and chapping such as occurs with exposures to paint thinners. More important, the fluid may be absorbed if it is allowed to remain on the unbroken skin. For these reasons, we recommend that the skin be washed with soap and water if there is contact. A skin burn resulting from accidental contact with hot fluid should be treated in the normal manner for any thermal burn due to hot oils.

Because of low vapor pressure, there is no significant vapor inhalation hazard when a Therminol fluid is at room temperature. For example, there is no vapor exposure problem while transferring the fluid from its shipping container to the heat transfer system. On the other hand, the vapors emitted by Therminols heated to elevated temperatures are injurious on prolonged or repeated exposure. The "threshold limit value" or atmospheric vapor concentration which cannot be safely exceeded (on a daily basis) is 0.5 - 1.0 milligrams of Therminol vapor per cubic meter of air in the workroom. In heat transfer installations, the fluid must be used in a closed system free from leaks with the expansion tank vented to the outdoors. Accordingly, there should be little or no opportunity for workers to come in contact with vapors. However, leaks due to packing failures or other mechanical causes which discharge the heated fluid into the work environment cannot be allowed to continue. Such prolonged exposure must be corrected to avoid possible systemic toxicity.


R. Emmet Kelly, M. D.
Medical Director

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