

TECHNICAL BULLETIN

BULLETIN 34

BURN RATE

NOTICE

The Engineering and Sciences Division of the United States Consumer Product Safety Commission has compiled the following time-temperature burn chart (based on the 1946 Harvard studies of Moritz and Henriques under Department of Defense contract). The chart shows the exposure times, under circumstances of full immersion, that will result in superficial, and partial or full-thickness, scald burns at various water temperatures.

BURN TABLE

Water Temperature ° F	Time for 1st Degree Burn	Time for Permanent Burns 2nd and 3rd Degree
110	(normal shower temp)	
116	(pain threshold)	
116	35 minutes	45 minutes
122	1 minute	5 minutes
131	5 seconds	25 seconds
140	2 seconds	5 seconds
149	1 second	2 seconds
154	instantaneous	1 second

(U.S. Government Memorandum, C.P.S.C., Peter L. Armstrong, Sept. 15, 1978)

Tap water scald injuries, particularly to young children (and the elderly and infirm), occur nationally with sufficient frequency and with such catastrophic results to be a foreseeable hazard of great concern.

Surface Temperature in the Causation of Cutaneous Burns, 23 American Journal of Pathology 147 (1046); Henriques, "Study of Thermal Injury V: The Predictability and the Significance of Thermally Induced Rate Processes Leading to Irreversible Epidermal Injury," 1946 Archives of Pathology 489.