

TABLE 37-G
THRESHOLD LIMIT VALUES FOR PHYSICAL AGENTS
1973

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**PREFACE
PHYSICAL AGENTS**

These threshold limit values refer to levels of physical agents and represent conditions under which it is believed that nearly all workers may be repeatedly exposed day after day without adverse effect. Because of wide variations in individual susceptibility, exposure of an occasional individual, at, or even below, the threshold limit may not prevent annoyance, aggravation of a pre-existing condition, or physiological damage.

These threshold limits are based on the best available information from industrial experience, from experimental human and animal studies, and when possible, from a combination of the three.

These limits are intended for use in the practice of industrial hygiene and should be interpreted and applied only by a person trained in this discipline. They are not intended for use, or for modification for use, (1) in the evaluation or control of the levels of physical agents in the community, (2) as proof or disproof of an existing physical disability, or (3) for adoption by countries whose working conditions differ from those in the United States of America.

These values are reviewed annually by the Committee on Threshold Limits for Physical Agents for revisions or additions, as further information becomes available.

Notice of Intent. At the beginning of each year, proposed actions of the Committee for the forthcoming year are issued in the form of a "Notice of Intent." This notice provides not only an opportunity for comment, but solicits suggestions of physical agents to be added to the list. The suggestions should be accompanied by substantiating evidence.

As legislative code. The Conference recognizes that the Threshold Limit Values may be adopted in legislative codes and regulations. If so used, the intent of the concepts contained in the Preface should be maintained and provisions should be made to keep the list current.

**NOTICE OF INTENT TO ESTABLISH
THRESHOLD LIMIT VALUES
Heat Stress**

These Threshold Limit Values refer to heat stress conditions under which it is believed that nearly all workers may be repeatedly exposed without adverse health effects. The TLVs shown in Table 1 are based on the assumption that nearly all acclimatized, fully clothed workers with

adequate water and salt intake should be able to function effectively under the given working conditions without exceeding a deep body temperature of 38 C (WHO technical report series #412, 1989 *Health Factors Involved in Working Under Conditions of Heat Stress*).

Since measurement of deep body temperature is impractical for monitoring the workers' heat load, the measurement of environmental factors is required which most nearly correlate with deep body temperature and other physiological responses to heat. At the present time, Wet Bulb-Globe Temperature Index (WBGT) is the simplest and most suitable technique to measure the environmental factors. WBGT values are calculated by the following equations:

1 Outdoors with solar load.
 $WBGT = 0.7WB + 0.2GT + 0.1DB$

2 Indoors or Outdoors with no solar load
 $WBGT = 0.7WB + 0.3GT$
where

WBGT = Wet Bulb-Globe Temperature Index

WB = Natural Wet-Bulb Temperature

DB = Dry-Bulb Temperature

GT = Globe Thermometer Temperature