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MAIN SUBJECT HEADING:

AN	HU	AT	IH	M
ANALYTICS	HUMAN EFFECTS	ANIMAL TOXICITY	WORKPLACE PRACTICES- ENGINEERING CONTROLS	MISCELLANEOUS

SECONDARY SUBJECT HEADINGS: AN HU AT IH M

Physical/Chemical Properties

Review

Animal Toxicology

Non-occupational Human
Exposure

Occupational Exposure

Epidemiology

Standards

Manufacturing

Uses

Reactions

Sampling/Analytical Methods

Reported Ambient Levels

Measured Methods

Work Practices

Engineering Controls

Biological Monitoring

Methods of Analysis

Treatment

Transportation/Handling/
Storage/Labeling

MR 369

frequency of radiation is 1000 Hz. The value of the transmission coefficient as a function of the distance p from the origin for different heights of the dipole, and the maximum value of the transmission coefficient v , the dipole height will be shown.

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4A.7

HUMAN THERMAL LOADING BY EXPOSURE TO EMISSIONS FROM A MICROWAVE OVEN

R. V. Prucha (U.S.A.)

Thermographic measurements in full scale human phantoms exposed to emissions from a microwave have been used to calculate temperature rise in a thermal model of the human body. Results have been compared with those for other heat input phenomena.

Full scale phantom models of a two-year child and a woman have been exposed to emissions from a forced leak in a microwave oven. The operating frequency was 915 MHz. Thermographic analysis using the technique developed at the University of Washington and reported in a companion paper by A. W. Guy provides data on specific absorption rate (SAR) and identification of the heating pattern. These data can be related to the defined leakage source intensity and have been corroborated in our laboratory. They have been used as the basis for heat input and temperature rise calculations in thermal models of humans. Both worst case and typical case calculations based on movement patterns have been made and the results have been compared with those produced by other heating means such as changes in metabolic rate (deep heating) and exposure to normal sunlight (surface heating). Results have also been compared with medical diathermy practice. These results show the very conservative nature of the current microwave oven emission standards.

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4A.8

THE PRACTICE OF MICROWAVE RADIATION SAFETY

S. C. Rexford-Welch* and I. R. Lindsay** (U.K.)

The microwave radiation personnel exposure (MPE) standard for most of the western world of 10 mW/cm^2 for continuous whole-body exposure is based on the amount of exogenous heat which the body can tolerate without any resulting rise in body temperature. In contrast, the eastern European standard of 0.01 mW/cm^2 for continuous irradiation is established in consideration of non-thermal, reversible, biological effects. The definition of a permissible exposure level is paramount to any protection programme, and it is not easy for the practitioner of microwave radiation safety to live with such a divergence in recommended standard.

The safety regimen adopted by major users of such an electromagnetic radiation generally includes safety officer appointments and the production of safety instructions, area control, the classification and medical surveillance of workers, and incident investigation.

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