Nomenclature

s Time in seconds
LOI Limiting Oxygen Index
I_p Pyrolysing length
V_p Flame spread rate
V_p Pyrolysis constant spread rate
\( \beta \) Coefficient of thermal expansion \( (k^-1) \)
V Vertical flame spread
d Flame spread distance
T Time of spread of flame
FR Flame Retardant
H_b Heat of burning in air
H_r Rate of heat generation per unit sample width
H_c Heat of combustion in oxygen bomb calorimeter
H_l Percent of \( H_c \) liberated by burning in air.
LPG Liquid petroleum gas
\( \Omega \) Injury factor/ burn damage integral
\( \Delta E \) Activation energy \( (6.28 \times 10^8 \text{ J/k mol}) \)
P Pre-exponential term used for injury factor \( (3.1 \times 10^{98} \text{s}^{-1}) \)
T Absolute temperature in K
R Stefan Boltzmann constant \( (1.986 \text{ cal/mo}^2\text{ K}) \)
BHPT Burn Hazard Potential Tester
T_1, T_2, T_3 Timing devices
T_i Time for ignition
FPR Flame Propagation Rate
BR Burning Rate
H_a Heat absorbed \( (\text{cal/cm}^2) \)
Q_i Incident Heat Flux \( (\text{cal/cm}^2\text{s}) \)
AIHF60 Average Incident Heat Flux for initial 60 Seconds
TBSA Total Body Surface Area
x Total depth of the skin
y,z Depth of skin in y and z directions
x_1 Depth at base of epidermis \( (80 \mu m) \)
x_2 Depth at base of dermis \( (1920 \mu m) \)
x_3 Depth at base of hypodermis \( (5000 \mu m) \)
\( \rho_1 \) Density of epidermis \( (1150 \text{ kg/m}^3) \)
\( \rho_2 \) Density of dermis (1200 kg/m³)
\( \rho_2 \) Density of hypodermis (1000 kg/m³)
\( C_1 \) Specific heat of epidermis (3600 °kJ/kg)
\( C_2 \) Specific heat of dermis and (2400 °kJ/kg)
\( C_3 \) Specific heat of hypodermis (3000 °kJ/kg)
\( C_s \) Specific heat of silver plate (0.056 cal/°C/gm)
\( C_b \) Specific heat of blood (4000 °C J/kg)
\( T_c \) Temperature of core of skin at base of hypodermis (37°C)
\( T_s \) Temperature at the surface of the skin
\( k_1 \) Thermal conductivity of epidermis (0.209 °k W/m)
\( k_2 \) Thermal conductivity of dermis (0.380 °k W/m)
\( k_3 \) Thermal conductivity of hypodermis (0.210 °k W/m)
\( Q_i \) External incident heat flux (k W/m²)
\( Q_{in} \) Volumetric metabolic heat flux. (420 W/m³)
\( T_1 \) Temperature of epidermis
\( T_2 \) Temperature of dermis
\( T_3 \) Temperature of hypodermis
\( A_1 \) Cross sectional area between epidermis-dermis (cm²)
\( A_2 \) Cross sectional area between dermis-hypodermis (cm²)
\( L_1 \) Length of epidermis (mm)
\( L_2 \) Length of dermis (mm)
\( W_b \) Blood profusion rate (0.5 kg/m³s)
\( T_a \) Artrial temperature(37°C)
\( T_r \) Room temperature
\( Q_{1,2} \) Conduction Heat transfer relation between epidermis and dermis
\( Q_{2,3} \) Conduction Heat transfer relation between dermis and hypodermis
SA1-SA10 Saree fabrics (Ten types of fabric material: 1 to 10)
PL Petticoat fabrics (light)
PH Petticoat fabrics (heavy)
B Bra fabric
UV Underwear fabric
B(C) Blouse fabric (cotton)
B(PC) Blouse fabric (polyester:cotton)
B(P) Blouse fabric (polyester)
C-H Carbon hydrogen bond