



Standard Terminology Relating to Protective Clothing¹

This standard is issued under the fixed designation F1494; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ϵ) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This standard defines the specialized terms used in standards developed by Committee F23 on Protective Clothing.

1.2 Definitions of Terms, which were drafted for use only in a single standard, are also included for convenient reference. Under ASTM rules they may become full definitions in the future, if they are used in additional standards.

1.3 Additional terminology relevant to protective clothing and to the components of protective clothing can be found in Terminology **D123**, **D1566**, and **D4805**.

2. Referenced Documents

2.1 ASTM Standards:²

D123 Terminology Relating to Textiles

D1566 Terminology Relating to Rubber

D4805 Terminology for Plastics Standards (Withdrawn 2002)³

F739 Test Method for Permeation of Liquids and Gases through Protective Clothing Materials under Conditions of Continuous Contact

F955 Test Method for Evaluating Heat Transfer through Materials for Protective Clothing Upon Contact with Molten Substances

F1001 Guide for Selection of Chemicals to Evaluate Protective Clothing Materials

F1002 Performance Specification for Protective Clothing for Use by Workers Exposed to Specific Molten Substances and Related Thermal Hazards

F1060 Test Method for Thermal Protective Performance of Materials for Protective Clothing for Hot Surface Contact

F1154 Practices for Qualitatively Evaluating the Comfort, Fit, Function, and Durability of Protective Ensembles and Ensemble Components

F1291 Test Method for Measuring the Thermal Insulation of Clothing Using a Heated Manikin

F1358 Test Method for Effects of Flame Impingement on Materials Used in Protective Clothing Not Designated Primarily for Flame Resistance

F1359 Test Method for Liquid Penetration Resistance of Protective Clothing or Protective Ensembles Under a Shower Spray While on a Mannequin

F1383 Test Method for Permeation of Liquids and Gases through Protective Clothing Materials under Conditions of Intermittent Contact

F1407 Test Method for Resistance of Chemical Protective Clothing Materials to Liquid Permeation—Permeation Cup Method

F1414 Test Method for Measurement of Cut Resistance to Chain Saw in Lower Body (Legs) Protective Clothing

F1449 Guide for Industrial Laundering of Flame, Thermal, and Arc Resistant Clothing

F1458 Test Method for Measurement of Cut Resistance to Chain Saw of Foot Protective Devices

F1461 Practice for Chemical Protective Clothing Program

F1670 Test Method for Resistance of Materials Used in Protective Clothing to Penetration by Synthetic Blood

F1671 Test Method for Resistance of Materials Used in Protective Clothing to Penetration by Blood-Borne Pathogens Using Phi-X174 Bacteriophage Penetration as a Test System

F1731 Practice for Body Measurements and Sizing of Fire and Rescue Services Uniforms and Other Thermal Hazard Protective Clothing

F1818 Specification for Foot Protection for Chain Saw Users

3. Terminology

3.1 Definitions:

after-flame time, n —the length of time for which a material continues to flame after the ignition source has been removed. (**F23.20**) **F1358**

afterglow, n —a glow in a material after the removal of an external ignition source or after the cessation (natural or induced) of flaming of the material (see also **glow**). (**F23.20**) **F1358**

¹ This terminology is under the jurisdiction of ASTM Committee F23 on Personal Protective Clothing and Equipment and is the direct responsibility of Subcommittee F23.91 on Editorial.

Current edition approved July 1, 2013. Published July 2013. Originally approved in 1993. Last previous edition approved in 2011 as F1494–03 (2011). DOI: 10.1520/F1494-13.

² For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

³ The last approved version of this historical standard is referenced on www.astm.org.

agar, *n*—a semisolid culture medium used to support the growth of bacteria and other micro-organisms. (F23.40)

F1671

analytical detection limit, *n*—a number, expressed in units of concentration (or amount), that describes the lowest concentration level (or amount) that an analyst can determine to be different from an analytical blank (background level).

(F23.70) **F1461**

airborne exposure pathways, *n*—inhalation routes of exposure to the medical face mask wearer.

analytical technique, *n*—a procedure whereby the concentration of the test chemical in a collection medium is quantitatively determined.

(F23.30) **F739**

anisotropic, *adj*—having different values for a specific property in different directions.

(F23.20) **F1358**

armhole, *n*—*in garment construction*, the area of a garment through which the arm passes or into which a sleeve is fitted. (See **armscye**.)

(F23.60) **F1731**

armscye, *n*—*in garment construction*, the opening in a garment for the attachment of a fitted sleeve. (See **armhole**.)

(F23.60) **F1731**

aseptic, *adj*—sterile, free from viable microbiological contamination.

(F23.40) **F1671**

assay, *n*—analysis of a mixture to determine the presence or concentration of a particular component. (F23.40) **F1671**

assay fluid, *n*—a sterile liquid used to wash the test specimen surface to determine microbiological penetration. (F23.40)

F1671

authority having jurisdiction, *n*—the organization, office, or individual responsible for approving any equipment, installation, or procedure.

(F23.20) **F1818**

back waist length, *n*—*in body measurements*, the vertical distance along the spine from the cervical to the waist.

(F23.60) **F1731**

bacterial filtration efficiency (BFE), *n*—the effectiveness of medical face mask material in preventing the passage of aerosolized bacteria; expressed in the percentage of a known quantity that does not pass the medical face mask material at a given aerosol flow rate.

bacteriophage, *n*—a type of virus which infects bacteria.

(F23.40) **F1671**

bartack, *n*—*in garment construction*, a reinforcement at points of strain.

(F23.60) **F1731**

biological monitoring, *n*—the chemical analysis of chemicals or metabolites, or both, from a worker's blood, urine, fingernails, sweat, breath, and so forth. (F23.70) **F1461**

body dimension, *n*—*in garment construction*, a body measurement which can be used to build a sizing system or to select an appropriately sized garment. (F23.60) **F1731**

body fluid, *n*—any liquid produced, secreted, or excreted by the human body.

body fluid simulant, *n*—a liquid which is used to act as a model for human body liquids. (F23.40) **F1670, F1671**

body measurement, *n*—*in anthropometry*, a standardized distance between two specified points on the human anatomy. (F23.60) **F1731**

break-open—in testing thermal protective material, a response evidenced by the formation of a hole in the material, which allows the molten substance to pass through the material. (F23.80) **F955**

breakthrough detection time, *n*—the elapsed time measured from the start of the test to the sampling time that immediately precedes the sampling time at which the test chemical is first detected. (F23.30) **F739, F1383**

buddy system, *n*—a means of organizing employee work groups whereby each participant is matched with another so that prompt assistance can be rendered in the case of any emergency. (F23.70) **F1461**

burn distance, *n*—the measurement from the bottom edge of the specimen to the farthest point that shows evidence of damage due to combustion. (F23.20) **F1358**

burning behavior, *n*—all the changes that take place when materials or products are exposed to a specified ignition source. (F23.20) **F1358**

bust girth, *n*—*in body measurement*, the circumference of the body over the fullest part of the breasts and parallel to the floor. (See **chest girth**.) (F23.60) **F1731**

care and maintenance, *n*—effective cleaning to remove soil and maximize use life of garments while maintaining (not removing) protective properties. (F23.80) **F1449**

centerline, *n*—*in foot protective devices*, a line which extends from the toe of the footwear horizontally along the sole to the heel vertically to the top of the footwear, and diagonally to the point of intersection at the toe. (F23.20) **F1458**

certification, *n*—a system whereby an organization determines that a manufacturer has demonstrated the ability to make a product that complies with the requirements of the specification, authorizes the manufacturer to use a label on products that comply with the requirements of the specification, and conducts a follow-up program to verify the methods the manufacturer uses to determine compliance with the requirements of this specification. (F23.20) **F1818**

certification organization, *n*—an independent, third party organization that determines product compliance with the requirements of the specification with a labeling and listing follow-up program. (F23.20) **F1818**

cervical, *n*—*in body measurements*, the most prominent bone at the base of the neck. (F23.60) **F1731**

chain saw, *n*—a portable power operated tool used for cutting wood which has cutters linked in a chain. (F23.20) **F1414, F1458**

chain speed, *n*—the velocity of synchronized movement of linked cutters around a bar and sprocket. (F23.20) **F1414, F1458**

chainstop, *n*—for chainsaw cut resistance, the resulting action when a material clogs (jams) the drive sprocket or slows the speed sufficiently to prevent advancement of the chain saw. (F23.20) **F1414, F1458, F1818**

challenge chemical—a chemical used to contact a protective clothing material sample to determine chemical/protective clothing material interactions or compatibility. (F23.30) **F1001**

challenge suspension, *n*—a liquid containing an agent that is used to test the penetration resistance of materials. (F23.40) **F1671**

charring—the formation of a carbonaceous residue as the result of pyrolysis or incomplete combustion. (F23.80) **F1060**

chemical protective clothing (CPC), *n*—any material or combination of materials used in an item of clothing for the purpose of isolating parts of the body from direct contact with a potentially hazardous chemical. (F23.70) **F1461**

chemical-protective suit ensemble—the combination of protective clothing with respiratory protective equipment, hoods, helmets, gloves, boots, communications systems, cooling devices, and other accessories intended to protect the wearer from a chemical hazard when worn together. (F23.50) **F1154, F1359**

chest, *n*—in garment construction, a measurement taken from below each armhole seam straight across the garment while it is laid flat. (F23.60) **F1731**

chest girth, *n*—in body measurements, the circumference of the body over the shoulder blades, under the arms and across the upper chest. (See **bust girth**.) (F23.60) **F1731**

clo, *n*—a unit of thermal resistance (insulation) equal to 0.155 K-m²/W. (F23.60) **F1291**

DISCUSSION—The value of the clo was selected as roughly the insulation value of typical indoor clothing, which should keep a resting man (producing heat at the rate of 58 W/m²) comfortable in an environment at 21°C, air movement 0.1 m/s.

closed-loop, *adj*—refers to a testing mode in which the collection medium volume is fixed. (F23.30) **F739, F1383**

clothing ensemble, *n*—a group of garments worn together on the body at the same time. (F23.60) **F1291**

collection medium, *n*—a liquid or gas that does not affect the measured permeation and in which the test chemical is freely soluble or adsorbed to a saturation concentration greater than 0.5 weight or volume percent. (F23.30) **F1383**

combustion, *n*—a chemical process of oxidation that occurs at a rate fast enough to produce heat and usually light either as glow or flames. (F23.20) **F1358**

contact time, *n*—in an intermittent contact test, the duration during each cycle that the challenge side chamber of the permeation cell is filled with the test chemical. (F23.30) **F1383**

core temperature, *n*—the mean temperature of the thermal core.

crotch, *n*—in anatomy, the body area adjacent to the vertex of the included angle between the legs. (F23.60) **F1731**

cuff, *n*—in garment construction, a finished edge at the end of either a garment sleeve or trouser leg created by turning back or rolling up and stitching the fabric. (F23.60) **F1731**

cumulative permeation, *n*—the total mass of chemical that permeates during a specified time from when the material is first contacted. (F23.30) **F1383, F1407**

cut resistance, *n*—in chainsaw testing, the ability of a material, while in contact with the linked cutters, to resist cut through of the cutters of a moving saw chain, independent of either jamming or chain stop. (F23.20) **F1414, F1458, F1818**

cut resistance (blade), *n*—in blade cut testing, the property that hinders cut through when a material or a combination of materials is exposed to a sharp-edged device.

cut-through time, *n*—for chainsaw cut resistance, the time required for a running chainsaw to effect complete breakthrough of a protective garment or protective device. (F23.20) **F1414, F1458, F1818**

cycle time, *n*—in an intermittent contact test, the interval of time from the start of one contact period to the start of the next contact period. (F23.30) **F1383**

decontamination, *n*—the removal of a contaminant or contaminants from the surface or matrix, or both, of CPC to the extent necessary for its next intended action (for example, reuse and disposal). (F23.70) **F1461**

dripping—in testing thermal protective material, a response evidenced by flowing of the fiber polymer. (F23.80) **F955**

ease, *n*—in garment construction, the difference between garment measurement and body measurement. (F23.60) **F1731**

elastomer, *n*—a term often used for rubber and polymers that have properties similar to rubber. (F23.70) **F1461**

elbow, *n*—in anatomy, the joint that articulates between the upper arm and the lower arm. (F23.60) **F1731**

embrittlement—the formation of a brittle residue as a result of pyrolysis or incomplete combustion. (F23.80) **F955, F1060, F1358**

end user, *n*—for the purpose of this guide, this term is used to identify specifically the party requiring protective clothing (for example, the employer of the person wearing the garment). (F23.80) **F1449**

Fick's laws of diffusion, *n*—mathematical descriptions of the movement of one type of molecule through another.

(F23.70) **F1461**

finish, *n*—a chemical or mechanical modification, or both, of the fabric for a specific performance result. (F23.80) **F1449**

finishing technique, *n*—*as applies to laundry and dry cleaning procedures*, the mechanical means by which the garment is put in its final state (for example, pressing, drying, wrinkle removal, and so forth). (F23.80) **F1449**

fit, *n*—the quality, state or manner in which the length and closeness of clothing, when worn, relates to the human body. (F23.60) **F1731**

flame, *n*—*as related to ignition of textiles*, a controlled hot luminous zone of gas or matter in gaseous suspension, or both, of constant size and shape that is undergoing combustion as evidenced by a low-intensity heat source of less than 5 kW, such as a burner flame on a gas stove. (F23.20) **F1358**

flame impingement, *n*—direct contact between a flame and a material. (F23.20) **F1358**

flame resistance, *n*—the property of a material whereby flaming combustion is prevented, terminated, or inhibited following application of a flaming or nonflaming source of ignition, with or without subsequent removal of the ignition source.

flammability, *n*—those characteristics of a material that pertain to its ignition and support of combustion. (F23.20) **F1358**

follow-up program, *n*—the sampling, inspection, tests, or other measures conducted by the certification organization on a periodic basis to determine the continued compliance of products that are being made by the manufacturer to the requirements of the standard specification. (F23.20)

foot, *n*—the terminal part of the vertebrate leg, including the ankle, upon which an individual stands (see **foot protective device**). (F23.20) **F1458**

foot protective device, *n*—*for chain saw cut resistance*, an article of personal equipment which covers the foot and ankle for the purpose of providing limited protection from injury due to contact with a moving saw chain. (F23.20) **F1458**

footwear, *n*—a boot or shoe of any construction. (F23.20) **F1458**

gaiter, *n*—*for chain saw cut resistance*, a foot protective device permanently attached to the outside of the footwear. (F23.20) **F1458**

garment, *n*—a single item of clothing (for example, shirt). (F23.60) **F1291**

girth, *n*—in body measurements, a circumferential measurement around some part of the body, such as neck, chest, waist, and so forth. (F23.60) **F1731**

glow, *n*—visible, flameless combustion of the solid phase of a material. (F23.20) **F1358**

hazard assessment, *n*—the determination of the lack of safety or degree of risk based on all integral parts of an exposure situation, including the characteristics of the chemical(s) to which one is exposed and the conditions that determine degree of exposure. (F23.70) **F1461**

hazardous chemical—any solid, liquid, gas, or mixture thereof that can potentially cause harm to the human body through inhalation, ingestion, or skin absorption. (F23.60) **F1154, (F2350), F1359**

heat flux, *n*—the thermal intensity indicated by the amount of energy transmitted per unit area and per unit time ($\text{cal}/\text{cm}^2\text{-s}$) (watts/cm^2). (F23.80) **F1060, F955**

hem, *n*—*in garment construction*, a simple finish in which the raw fabric edge is turned under and stitched to a garment. (See **cuff**.) (F23.60) **F1731**

hip, *n*—*in anatomy*, the laterally projecting region formed by the lateral parts of the pelvis and the upper part of the femur together with the flesh covering them. (F23.60) **F1731**

hip girth, *n*—*in body measurements*, the maximum circumference of the body at the level of maximum prominence of the buttocks. (F23.60) **F1731**

ignition, *n*—the initiation of combustion. (F23.80)

industrial hygienist, *n*—a person who, by experience and academic training, is qualified to recognize, evaluate, and control chemical, physical, and biological agents in the workplace, or a person certified by the American Board of Industrial Hygiene. (F23.70) **F1461**

inseam, *n*—*in garment construction*, with the trousers folded by mating the inside leg seams, measure from center of crotch to bottom edge of trouser's leg or cuff. (F23.60) **F1731**

inseam length, *n*—*in body measurements*, from center of crotch to 25.4 mm (1 in.) below top of the shoe. (F23.60) **F1731**

jamming, *n*—*for chainsaw cut resistance*, the clogging action manifested by a protective garment which can produce a chain stop. (F23.20) **F1414, F1458, F1818**

knee, *n*—*in anatomy*, the joint between the lower and upper leg. (F23.60) **F1731**

label, *v*—*for protective clothing*, to attach a symbol or other identifying mark, the use of which has been authorized by a certification organization. (F 23.20) **F1818**

laundry formula, *n*—a list of chemicals, amounts, and procedures used in a laundry operation. (F23.80) **F1449**

lawn, *n*—*as in microbiology*, a cloudy, uniform growth of bacteria in a thin layer of top agar in a petri dish. (F23.40) **F1671**

- liner**, *n*—a foot protective device worn inside the footwear. (F23.20) **F1458**
- list**, *v*—*for protective clothing*, to publish a register of equipment or materials which has been verified by a certification organization as being acceptable and meeting the requirements of standard specifications. (F23.20) **F1818**
- lower body**, *n*—that part of the human body which includes all portions between the waist and feet, not to include the feet. (F23.20) **F1414**
- lysis**, *n*—the disintegration or destruction of whole bacterial cells. (F23.40) **F1671**
- maternity wear**, *n*—clothing worn during pregnancy. (F23.60) **F1731**
- medium (plural, media)**, *n*—a nutrient system for the cultivation of cells or organisms, and especially bacteria. (F23.40) **F1671**
- metabolic rate**, *n*—the rate of transformation of chemical energy into heat and mechanical work by aerobic and anaerobic activities within an organism.
- minimum detectable mass permeated**, *n*—the smallest mass of permeant that is detectable with the complete permeation test system. (F23.30) **F739, F1383**
- minimum detectable permeation rate**, *n*—the lowest rate of permeation that is measurable with the complete permeation test system. (F23.30) **F739, F1383**
- molten substances**—metals in their liquefied, elevated temperature state, as well as related non-metallic substances also handled at elevated temperatures such as slag, dross, and salt. Excluded are liquid hot substances that may be associated with metal processing such as water, oil, and caustic solutions. (F23.80) **F1002**
- morphology**, *n*—the form and structure of a particular organism. (F23.40) **F1671**
- neck base girth**, *n*—*in body measurements*, the circumference of the neck over the cervical at the back and at the top of the collar bone at the front. (F23.60) **F1731**
- neck girth**, *n*—*in garment construction*, with shirt open in front and collar fully extended and laid out flat, measure from center of collar button to the far end of the button hole. (F23.60) **F1731**
- nutrient broth**, *n*—a liquid medium. (F23.40) **F1671**
- occlusion**, *n*—the physical process of covering a chemical that has been applied to or spilled on the skin, thereby disallowing its evaporation and generally increasing its absorption through the skin. (F23.70) **F1461**
- open loop**, *adj*—refers to a testing mode in which fresh collection medium flows continuously through the collection chamber of the test cell. (F23.30) **F739, F1383**
- overall gas penetration resistance**, *n*—the integrity of a totally encapsulating chemical protective suit to resist the inward leakage of gases when exposed to a hazardous chemical environment. (F23.60) **F1154**
- overall liquid penetration resistance**, *n*—the integrity of a chemical protective suit to resist the inward leakage of liquids when exposed to a hazardous chemical environment. (F23.60) **F1154**
- physical-chemical parameters**, *n*—values for physical or chemical properties of a permeant or polymer, or both, such as solubility parameters, molecular weight, vapor pressure, and so forth. (F23.70) **F1461**
- placket**, *n*—*in garment construction*, a finished garment opening that is usually dependent on mechanical devices called closures to secure the opening. (F23.60) **F1731**
- plastic**, *n*—a material that contains, as an essential ingredient, one or more organic polymeric substances of large molecular weight, is solid in its finished state, and, at some stage in its manufacture or processing into finished articles, can be shaped by flow. (F23.70) **F1461**
- plaque**, *n*—*as in virology*, a visible, clear area, which is theoretically the result of the infection and lysis of host cells by a single viable virus. (F23.40) **F1671**
- plaque forming unit (PFU)**, *n*—a virus particle capable of producing plaques by infecting and lysing bacteria in a lawn in top agar. (F23.40) **F1671**
- plate**, *n*—*as in microbiology*, a Petri dish containing culture medium. (F23.40) **F1671**
- polymer**, *n*—a substance consisting of molecules characterized by repetition (neglecting ends, branches, junctions, and other minor irregularities) of one or more chemically bonded types of monomeric units. (F23.70) **F1461**
- polymer sheet**, *n*—a continuous polymeric planar structure. (F23.70) **F1461**
- primary protective clothing**—protective clothing designed to be worn for work activities during which significant exposure to molten substance splash, radiant heat, and flame is likely to occur. (F23.80) **F1002**
- processing launderer (processor)**, *n*—the party performing the operation of cleaning or repairing, or both, of the flame, thermal, and arc resistant clothing.
- processor**, *n*—*as applies to garment maintenance*, the party performing the care and maintenance operation. (F23.80) **F1449**
- program**, *n*—a documented policy with procedures for selection and use of CPC. (F23.70) **F1461**
- program administrator**, *n*—a person responsible for the formulation and implementation of a CPC program. (F23.70) **F1461**
- program authority**, *n*—a person responsible for enforcing the requirements of a CPC program. (F23.70) **F1461**

protective clothing, *n*—an item of clothing that is specifically designed and constructed for the intended purpose of isolating all or part of the body from a potential hazard; or, isolating the external environment from contamination by the wearer of the clothing.

protective clothing material, *n*—any element, constituent, or substance from which protective clothing is composed or can be made.

protective ensemble, *n*—the combination of protective clothing with respiratory protective equipment, hoods, helmets, gloves, boots, communication systems, cooling devices, and other accessories intended to protect the wearer from a potential hazard when worn together.

purge time, *n*—*in an intermittent contact test*, the time immediately following the termination of the contact time when the test chemical is removed from the challenge side chamber and air or nitrogen is blown over the outside surface of the protective clothing material. (F23.30) **F1383**

radiant heat—heat communicated by energy propagated through space and transmitted by electromagnetic waves. (F23.80) **F1002**

response to molten substance pour—*in testing thermal protective material*, the observed effect of molten substance contact on textile properties or deterioration of the material. (F23.80) **F955**

sample test suite, *n*—any number of test specimens used to derive a single thermal performance estimate value.

saw chain, *n*—a closed loop of cutters linked together for use in a portable power-operated tool. (F23.20) **F1414, F1458**

secondary protective clothing—protective clothing designed for continuous wear for work activities in designated locations in which intermittent exposure to molten substance splash, radiant heat, and flame sources is possible. (F23.80) **F1002**

shirt, *n*—a cloth garment for the upper part of the body made of either woven or knitted fabric usually having sleeves, a neck opening, a front opening and a tail long enough to be tucked inside trousers or skirt. (F23.60) **F1731**

shirt back length, *n*—*in garment construction*, a measurement centered below the collar band to bottom edge of shirttail. (F23.60) **F1731**

shirt front length, *n*—*in garment construction*, a measurement from the placket top, below the collar band to the bottom edge of the shirt's hem in front. (F23.60) **F1731**

shirt sides, *n*—*in garment construction*, a measurement of length from below armhole to the bottom hem. (F23.60) **F1731**

shrink, *vt*—to cause to contract, to compact cloth by causing to contract when subjected to washing, boiling, steaming or other processes. (F23.60) **F1731**

shrinkage, *n*—a decrease in one or more dimensions of an object or material. (F23.60) **F1731, F1060, F955**

size, *n*—one of a series of graduated measurements in manufactured articles of clothing conventionally identified by numbers, letters, or words. (F23.60) **F1731**

station/work uniform, *n*—a nonprimary protective clothing ensemble consisting of a shirt and pants that is intended to be worn by members of the fire and rescue services while on duty. (F23.60) **F1731**

steady-state permeation, *n*—the constant rate of permeation that occurs after breakthrough when the chemical contact is continuous and all forces affecting permeation have reached equilibrium. (F23.30) **F739**

sterile, *adj*—free from viable microorganisms. (F23.40) **F1671**

sticking—a response evidenced by softening and adherence of the material to the hot surface or other material. (F23.80) **F1060**

surrogate microbe, *n*—a microorganism which is used to act as a simulant for other microorganisms which are pathogenic to humans. (F23.40) **F1671**

synthetic blood, *n*—a mixture of a red dye/surfactant, thickening agent, and distilled water having a surface tension and viscosity representative of blood and some other body fluids, and the color of blood. (F23.40) **F1670**

test chemical, *n*—the liquid or gas that is used to challenge the protective clothing material specimen. (F23.30) **F739, F1383, F1407**

testing programs—programs involving test procedures to determine chemical/protective clothing material interactions or compatibilities. Testing programs include, but are not limited to, testing protective clothing materials for resistance to degradation, penetration, and permeation. (F23.30) **F1001**

thermal core, *n*—the deep tissues of the brain, neck, and torso whose temperatures are not changed in their relationship to each other by circulatory adjustments.

thermal hazard—relates to the laboratory test methods employed to measure thermal characteristics and to predict burn injury potential. (F23.80) **F1002**

thermal insulation, *n*—the resistance to dry heat transfer via conduction, convection, and radiation. (F23.60) **F1291**

thigh, *n*—*in garment construction*, with trouser leg laid out flat, measure from crotch seam straight across to leg side seam. (F23.60) **F1731**

thigh girth, *n*—*in body measurements*, the maximum circumference of the upper leg close to the crotch. (F23.60) **F1731**

time interval, *n*—the time between weighings of the permeation cup. (F23.30) **F1407**

titer, *n*—the quantity of a substance required to react with, or to correspond to, a given amount of another substance. (F23.40) **F1671**

toe area cut zone, *n*—in the testing of foot protective devices, that area excluding the sole which extends from the front most part of the footwear to a vertical plane 15 + 0.25 mm behind the toe box; or in the absence of a toe box, the area which extends to a vertical plane 65 + 6.25 mm from the front of the footwear. (F23.20) **F1458**

toe box, *n*—in testing of foot protective devices, a component inserted into the toe area of footwear. (F23.20) **F1458**

total crotch length, *n*—in body measurements, the distance from the waist level at center front through the crotch to the waist level at center back. (F23.60) **F1731**

toxicity, *n*—the propensity of a substance to produce adverse biochemical or physiological effects. (F23.70) **F1461**

trouser back rise, *n*—in garment construction, a measurement from the crotch seam to bottom edge of waistband at center of the back. (F23.60) **F1731**

trouser front rise, *n*—in garment construction, a measurement from the crotch seam to the bottom edge of waistband at center front. (F23.60) **F1731**

trouser hips, *n*—in garment construction, the garment's circumference measured at the bottom of pockets or bartack on fly. (F23.60) **F1731**

trouser waist, *n*—in garment construction, with trousers folded in half by the crease or mating the leg inseams, measure across waist-band's width and double the measurement. (F23.60) **F1731**

trousers, *n*, *pl*—an outer garment extending from the waist to the ankle covering each leg separately. (Syn. pants). (F23.60) **F1731**

upper, *n*—that area of the footwear above the sole. (F23.20) **F1458**

upper cut zone, *n*—in the testing of foot protective devices, the area starting at the top of the area of protection on the footwear and extending downward to include the entire upper, excluding the toe area cut zone. (F23.20) **F1458**

viral penetration, *n*—the penetration of a material by a virus. (F23.40) **F1671**

viral resistant, *adj*—referring to materials which impede viral penetration under specified laboratory test conditions and detection methods. (F23.40) **F1671**

virus, *n*—a minute infectious agent, which lacks independent metabolism and is only able to replicate within a living host cell. (F23.40) **F1671**

waist, *n*—in anatomy, the part of the body at the location between the lowest rib and hip identified by bending the body to the side. (F23.60) **F1731**

waist girth, *n*—in body measurements, the circumference of the waist immediately below the lowest rib. (F23.60) **F1731**

wrist, *n*—in anatomy, the joint which articulates between the end of the lower arm and the hand. (F23.60) **F1731**

wrist girth, *n*—in body measurements, the circumference over the prominence of the inner and outer forearm bones. (F23.60) **F1731**

3.2 Definitions of Terms Specific to This Standard:

human tissue burn tolerance—in the testing of thermal protective materials, the amount of thermal energy predicted to cause a second-degree burn in human tissue. **F955**

melting—a response evidenced by softening of the material, resulting in a nonreversible change. **F1060**

thermal end point—in testing of thermal protective materials, the point of where the sensor response on the recorder chart intersects the human tissue burn tolerance criteria overlay. **F955**

ANNEX

(Mandatory Information)

A1. TERMINOLOGY REVISION PROCEDURES

A1.1 Revisions of Definitions

When the concept of a term, namely a definition, is already published in Committee F23 standards, its definition may be revised through one of the following procedures:

A1.1.1 One Subcommittee Involved

A definition may be revised in the normal course of revising the standard. A revised definition may be inserted into a new standard or a revision of an existing standard of that subcommittee, provided the ballot of the proposed standard is accompanied by a cover memorandum or note on the ballot including the following statement:

“Approval of this ballot will constitute approval to substitute the proposed definition for ‘____,’ which is under the jurisdiction of subcommittee into F23.____ and to editorially place it into Terminology F1494.”

A1.1.2 Two or More Subcommittees Involved

A1.1.2.1 If a technical subcommittee which does not have jurisdiction for the term elects to propose a new definition, it shall submit the proposed new or revised definition to the chairperson of the terminology subcommittee who will compare it with existing definitions to determine whether it is an improvement (broader in scope, less wordy, more precise, and

so forth) over the existing definition. If it is not an improvement, the chairperson of the terminology subcommittee may recommend to the technical subcommittee that it use the existing definition, but add its own point-of-view in a “Discussion” following the definition. If the new definition appears to be an improvement, the chairperson of the terminology subcommittee shall recommend the revised definition to the chairperson of the subcommittee having jurisdiction and make a request that the subcommittee having jurisdiction initiate a ballot to change the definition. The subcommittee chairperson must cite all of the technical standards under the subcommittee jurisdiction in which the term is used when initiating this ballot. A rationale and commentary for making the change needs to accompany the ballot.

After this new definition has been agreed upon by the subcommittee, the approved change is submitted to the Main Committee ballot as revision to the standards cited and include the statement noted below:

“Approval of this ballot will constitute approval to substitute the proposed definition for ‘____,’ which is under the jurisdiction of this subcommittee, and to editorially place it into Terminology F1494.”

A1.1.3 The chairperson of the terminology subcommittee may also (1) initiate improvements in definitions, (2) initiate ballots to resolve redundancies, and (3) resolve redundancies through editorial changes by coordinating such changes with

the chairpersons of the technical subcommittee(s) involved, the ASTM staff Committee Editor, and the ASTM Editorial Review Committee.⁴

A1.1.3.1 When it has been discovered that a subcommittee has jurisdiction of redundant definitions, the chairperson of the terminology subcommittee will request that the subcommittee chairperson determine which term is the “preferred” term by the subcommittee. The subcommittee chairperson will be asked to initiate a concurrent subcommittee and main committee ballot to remove the redundant definition. This ballot action will be accompanied with a cover letter which explains the ballot action and the results which will occur.

A sample letter could be as follows:

To all Voters:

- Subcommittee F23.____ discovered that redundant definitions exist for the term “____,” which is under jurisdiction of Subcommittee F23.____.
- List term, definitions, and indicate which is “preferred” and which is “redundant.”
- Approval of this ballot will constitute approval to eliminate the redundant definition(s), also under the jurisdiction of Subcommittee F23.____.
- Approval of this ballot further constitutes approval to editorially remove redundant definition(s) from Terminology F1494.

⁴ Editorial changes to eliminate redundant definitions will not result in a year change to the standard whereas substantive changes will result in a year change.

This standard is subject to revision at any time by the responsible technical committee and must be reviewed every five years and if not revised, either reapproved or withdrawn. Your comments are invited either for revision of this standard or for additional standards and should be addressed to ASTM International Headquarters. Your comments will receive careful consideration at a meeting of the responsible technical committee, which you may attend. If you feel that your comments have not received a fair hearing you should make your views known to the ASTM Committee on Standards, at the address shown below.

This standard is copyrighted by ASTM International, 100 Barr Harbor Drive, PO Box C700, West Conshohocken, PA 19428-2959, United States. Individual reprints (single or multiple copies) of this standard may be obtained by contacting ASTM at the above address or at 610-832-9585 (phone), 610-832-9555 (fax), or service@astm.org (e-mail); or through the ASTM website (www.astm.org). Permission rights to photocopy the standard may also be secured from the ASTM website (www.astm.org/COPYRIGHT/).