

of materials determined in approval testing prescribed in §160.077-19(d). The average grab breaking strength and tear strength of the material must be at least 90% of the grab breaking strength and tear strength determined from testing prescribed in §160.077-19(d). No individual sample result for breaking strength or tear strength may be more than 20% below the results obtained in approval testing.

(2) *Fabric covered chambers.* Each material used in the construction of inflation chambers that are covered with fabric must meet the requirements specified for—

(i) Bladder materials in section 3.2.6 of MIL-L-24611(SH) if the material is an unsupported film, except that any color or finish may be used; or

(ii) Coated fabric in section 3.1.1 of TSO-C13 if the material is a coated fabric.

(3) *Uncovered chambers.* Each material used in the construction of inflation chambers that are not covered with fabric must meet the requirements specified in paragraph (d)(2)(ii) and (a)(5)(i) of this section.

(e) *Thread.* Each thread must meet the requirements of subpart 164.023 of this chapter. Only one kind of thread may be used in each seam. Thread and fabric combinations must have similar elongation and durability characteristics.

(f) *Webbing.* Webbing used as a body strap, tie tape or drawstring, or reinforcing tape must meet §160.002-3(e), §160.002-3(f), and §160.002-3(h) of this chapter respectively. Webbing used for tie tape or drawstring must be capable of easily holding a knot and being easily tied and untied. Webbing used as reinforcing tape must be smooth enough to prevent chafing the wearer.

(g) *Closures—(1) Strength.* Each closure such as a buckle, snap hook and dee ring, or other type of fastening must comply with UL 1517, section 4.1. The width of each closure opening through which body strap webbing passes must be the same as the width of that webbing.

(2) *Means of Locking.* Each closure used to secure a PFD to the body, except a zipper, must have a quick and positive means of locking, such as a snap hook and dee ring.

(3) *Zipper.* If a zipper is used to secure a PFD to the wearer it must be—

(i) Easily initiated;

(ii) Non-jamming;

(iii) Right handed; and

(iv) Of a locking type.

(h) *Inflation medium.* If a hybrid PFD has an automatic or manual inflation mechanism—

(1) The inflation medium must not contain or produce compounds more toxic than CO₂ in sufficient quantity to cause an adverse reaction if inhaled through any of its oral inflation mechanisms; and

(2) Any chemical reaction during inflation must not leave a toxic residue.

(i) [*Reserved*]

(j) *Kapok pad covering.* If kapok flotation material is used, pad covering that meets §160.047-3(e) of this chapter must be provided to enclose the material in at least three separate pads.

[CGD 78-174, 50 FR 33928, Aug. 22, 1985, as amended by CGD 84-068, 58 FR 29494, May 20, 1993; CGD 78-174, 60 FR 2486, Jan. 9, 1995; USCG-2000-7790, 65 FR 58463, Sept. 29, 2000]

§ 160.077-13 Materials—Type I and Commercial Hybrid PFD.

(a) *General.* All commercial hybrid PFD materials must meet §160.077-11 and this section.

(b) *Closures.* Each closure other than a zipper must have a minimum breaking strength of 1000 N (225 lbs). If a zipper is used to secure the PFD to the body, it must be used in combination with another closure that has a quick and positive means of locking.

(c) *Retroreflective Material.* Each PFD must have at least 200 sq. cm. (31 sq. in.) of retroreflective material on its front side, at least 200 sq. cm. on its back side and at least 200 sq. cm. of material on each reversible side, if any. The material must be Type I material that is approved under Subpart 164.018 of this chapter. The material attached on each side must be divided equally between the upper quadrants of the side. The material, as attached, must not impair PFD performance.

[CGD 78-174, 50 FR 33928, Aug. 22, 1985, as amended by CGD 78-174, 60 FR 2487, Jan. 9, 1995]