



UL 1197

STANDARD FOR SAFETY

Immersion Suits

UL Standard for Safety for Immersion Suits, UL 1197

Third Edition, Dated April 20, 2007

Summary of Topics

This revision to UL 1197 dated September 23, 2021 is issued to remove the ANSI designation from the titlepage, as ANSI has been withdrawn from the standard.

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UL 1197

Standard for Immersion Suits

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Second Edition – October, 1996

Third Edition

April 20, 2007

This UL Standard for Safety consists of the Third Edition including revisions through September 23, 2021.

Comments or proposals for revisions on any part of the Standard may be submitted to UL at any time. Proposals should be submitted via a Proposal Request in UL's On-Line Collaborative Standards Development System (CSDS) at <https://csds.ul.com>.

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INTRODUCTION

1 Scope

1.1 These requirements cover immersion suits intended for United States Coast Guard (USCG) approval under 46 CFR 160.171.

1.2 The suits covered by these requirements are intended to reduce the occurrence of shock to the wearer upon entering cold water and retard the onset of hypothermia (reduce the rate of body heat loss during periods of immersion in water). Immersion suits are required by the USCG to provide thermal protection properties in accordance with USCG regulations [see Thermal Protection Test, Section [22](#) in this standard and 46 CFR 160.171-17(d)].

1.3 These requirements cover immersion suits that incorporate auxiliary, inflatable means to provide buoyancy as well as suits that rely only on inherently buoyant material to provide the required flotation characteristics.

2 Units of Measurement

2.1 Values stated without parentheses are the requirement. Values in parentheses are explanatory or approximate information.

3 Undated References

3.1 Any undated reference to a code or standard appearing in the requirements of this standard shall be interpreted as referring to the latest edition of that code or standard.

4 Components

4.1 Except as indicated in [4.2](#), a component of a product covered by this standard shall comply with the requirements for the Standard for Components for Personal Flotation Devices, UL 1191, and when the United States Coast Guard has specific requirements for the components, it shall comply with those requirements first.

4.2 A component is not required to comply with a specific requirement that:

- a) Involves a feature or characteristic not required in the application of the component in the product covered by this standard, or
- b) Is superseded by a requirement in this standard.

4.3 A component shall be used in accordance with its rating established for the intended conditions of use.

4.4 Specific components are incomplete in construction features or restricted in performance capabilities. Such components are intended for use only under limited conditions, such as certain temperatures not exceeding specified limits, and shall be used only under those specific conditions.

5 Glossary

5.1 For the purpose of this standard the following definitions apply.

5.2 FOAM – Closed-cell, flexible, foamed polymeric material.

5.3 FREEBOARD – A distance measured perpendicularly from the surface of the water to the lowest point where the wearer's respiration is impeded. The freeboard of a test subject wearing an immersion suit is measured with the subject in the attitude of static balance in which respiration is not impeded.

5.4 RETROREFLECTIVE MATERIAL – A material that reflects light so that the paths of the light rays are parallel to the incident rays.

5.5 STRUCTURAL SEAM – A seam that serves a functional purpose in the end product as distinguished from a decorative function.

6 Materials

6.1 Metal hardware shall:

- a) Be AISI Type 410 stainless steel; or
- b) Have at least equivalent resistance to corrosion when subject to the Corrosion Resistance Test, Section [32](#).

6.2 Metals shall be used in combinations that are galvanically compatible.

6.3 The primary (inherent) buoyancy of an immersion suit shall be provided by foam. Loose or granular materials shall not be relied upon to provide buoyancy; however, inflatable compartments intended to provide auxiliary buoyancy are not prohibited. See Stability and Retroreflective Material Tests, Section [18](#).

6.4 Adhesive shall be an all-purpose, waterproof type intended for use with the materials being bonded.

CONSTRUCTION

7 General

7.1 An oral inflation mechanism shall not be able to be locked in the open or closed position.

8 Sizing and Arrangement

8.1 General

8.1.1 An immersion suit shall be constructed to cover the entire area of a wearer's body, except the area of the nose and eyes are not required to be covered. The construction shall not permit a water spray to enter a wearer's mouth directly.

8.1.2 An adult size immersion suit shall be constructed to fit persons ranging from:

- a) 110 to 330 pounds (50 to 150 kg) in weight; and
- b) 59 to 75 inches (1.5 to 1.9 m) in height.

8.1.3 A child size immersion suit shall be constructed to fit persons ranging from:

- a) 44 to 110 pounds (20 to 50 kg) in weight; and
- b) 39 to 59 inches (1.0 to 1.5 m) in height.