



Institut luxembourgeois de la normalisation
de l'accréditation, de la sécurité et qualité
des produits et services

ILNAS-EN 14225-1:2005

**Diving suits - Part 1: Wet suits -
Requirements and test methods**

Tauchanzüge - Teil 1: Nasstauchanzüge -
Anforderungen und Prüfverfahren

Vêtements de plongée - Combinaisons
isothermes - Partie 1: Exigences et
méthodes d'essai

03/2005



National Foreword

This European Standard EN 14225-1:2005 was adopted as Luxembourgish Standard ILNAS-EN 14225-1:2005.

Every interested party, which is member of an organization based in Luxembourg, can participate for FREE in the development of Luxembourgish (ILNAS), European (CEN, CENELEC) and International (ISO, IEC) standards:

- Participate in the design of standards
- Foresee future developments
- Participate in technical committee meetings

<https://portail-qualite.public.lu/fr/normes-normalisation/participer-normalisation.html>

THIS PUBLICATION IS COPYRIGHT PROTECTED

Nothing from this publication may be reproduced or utilized in any form or by any mean - electronic, mechanical, photocopying or any other data carries without prior permission!

EUROPEAN STANDARD ^{ILNAS-EN 14225-1:2005} **EN 14225-1**
NORME EUROPÉENNE
EUROPÄISCHE NORM

March 2005

ICS 97.220.40

English version

Diving suits - Part 1: Wet suits - Requirements and test methods

Vêtements de plongée - Partie 1: Combinaisons
isothermes - Exigences et méthodes d'essai

Tauchanzüge - Teil 1: Nasstauchanzüge - Anforderungen
und Prüfverfahren

This European Standard was approved by CEN on 14 February 2005.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: rue de Stassart, 36 B-1050 Brussels

Contents	Page
Foreword	3
Introduction	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	5
4 Requirements	6
4.1 Mechanical performance	6
4.2 Limitation of water flow into and out of the suit	7
4.3 Thermal performance of suit materials	7
4.4 Sizing	8
4.5 Practical performance	8
5 Test methods	8
5.1 General	8
5.2 Test sequence	9
5.3 Visual Inspection	10
5.4 Mechanical test methods	11
5.5 Practical performance test	12
6 Marking	15
7 Information to be supplied by the manufacturer	16
7.1 Information to be supplied with the suit	16
7.2 Customer information for supply at the point of sale	16
7.3 Instructions for use	16
Annex A (normative) Method for determination immersed thermal resistance of diving suit material	18
A.1 Principle	18
A.2 Theory	18
A.3 Use of the measurements	19
A.4 Test procedure	19
Annex B (normative) Ratings of practical performance	22
B.1 Practical Performance: Scale and Questionnaire	22
Annex C (informative) Guidance on selection and use of a wet suit, to be provided by the manufacturer	23
C.1 Wet suit function	23
C.2 Wet suit type	23
C.3 Wet suit fit	23
C.4 Warning	23
C.5 Wet suit thermal insulating material	24
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 89/686/EEC	25
Bibliography	26

Foreword

This document (EN 14225-1:2005) has been prepared by Technical Committee CEN/TC 162 "Protective clothing including hand and arm protection and lifejackets", the secretariat of which is held by DIN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by September 2005, and conflicting national standards shall be withdrawn at the latest by September 2005.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive 89/686/EEC.

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

This standard for wet suits is Part 1 of 4. The other parts are:

Diving Suits – Part 2: Dry suits – Requirements and test methods.

Diving Suits – Part 3: Actively heated or cooled suits (systems) – Requirements and test methods.

Diving Suits – Part 4: One atmosphere suits (ADS) – Human factors requirements and test methods.

This document includes a Bibliography.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This document for wet diving suits has been prepared to meet the needs of persons engaged in underwater activities where the user is breathing underwater, and where water temperature and exposure duration are such that the person's thermal requirement can be met using a wet suit.

A wet suit may be comprised of one or more pieces.

The conformity of a wet suit to this document does not imply that it is suitable for all circumstances nor does the document make detailed provision for all special uses for which wet suits may be utilised.

The thermal protection provided by a wet suit may be affected by a number of factors including the following:

- water temperature;
- diver's morphology (body surface area and shape, amount of body fat, sex);
- diver's physiology;
- diver's rate of work and working conditions;
- thermal properties of the material of the wet suit.

Most of these factors are individual and significantly change from diver to diver and from dive to dive.

1 Scope

This document specifies the construction and performance requirements (including thermal) of wet suits for wear by divers for underwater activities where the user is breathing underwater. Marking, labelling, information to be provided at the point of sale, and instructions for use are also specified.

Laboratory and practical performance tests are specified.

Short sleeve jackets, short-leg trousers, under and over-garments, and separate accessories such as gloves, hoods and boots are not within the scope of this document.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 250, *Respiratory equipment — Open-circuit self-contained compressed air diving apparatus — Requirements, testing, marking*

EN 340, *Protective clothing — General requirements*

EN 1809:1997, *Diving accessories — Buoyancy compensators — Functional and safety requirements, test methods*

EN 23758, *Textiles — Care labelling code using symbols (ISO 3758:1991)*

3 Terms and definitions

For the purpose of this document, the following terms and definitions apply.

3.1

diving suit

suit designed for intended underwater activities, in which the user is breathing underwater

3.2

wet suit

diving suit, made of thermal insulating material, which covers all or part of the body and that is designed to reduce the flow of the water next to the diver's skin

3.3

thermal insulating material

material designed to provide a degree of insulation of the wearer from external temperatures

3.4

thermal resistance

temperature difference between the two faces of a textile material or composite divided by the resultant dry heat flux per unit area in the direction of the temperature gradient, expressed in square metre Kelvin per watt ($\text{m}^2 \cdot \text{K} \cdot \text{W}^{-1}$)

NOTE The dry heat flux can consist of one or more conductive, convective and radiant components.

3.5

immersed thermal resistance

thermal resistance of a textile material or composite when the material is immersed in water and subjected to the effect of hydrostatic compression