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INTERNATIONAL STANDARD



**Classification of environmental conditions –
Part 3-2: Classification of groups of environmental parameters and their
severities – Transportation and handling**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

CLASSIFICATION OF ENVIRONMENTAL CONDITIONS –

**Part 3-2: Classification of groups of environmental parameters
and their severities –
Transportation and handling**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as "IEC Publication(s)"). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

International Standard IEC 60721-3-2 has been prepared by IEC technical committee 104: Environmental conditions, classification, and methods of test.

This third edition cancels and replaces the second edition, published in 1997, and constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) Clause 1: reworded and added handling.
- b) Clause 2: updated normative references.
- c) Clause 3: updated definitions.
- d) Clause 4: reworded and simplified.
- e) Clause 5: revised and updated. Several classes have been replaced by completely new classes based on the use of new information obtained from referenced Technical Reports.
- f) Table 1 through Table 5: updated.
- g) Table 6 deleted.
- h) Old annexes A to C removed except Clause A.3 that is incorporated in Clause 0.
- i) New Annex A.

The text of this International Standard is based on the following documents:

FDIS	Report on voting
104/773/FDIS	104/783/RVD

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60721 series, published under the general title *Classification of environmental conditions*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
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- amended.

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The contents of the corrigenda 1 (2018-11), 2 (2022-06) and 3 (2024-05) have been included in this copy.

CLASSIFICATION OF ENVIRONMENTAL CONDITIONS –

Part 3-2: Classification of groups of environmental parameters and their severities – Transportation and handling

1 Scope and object

This part of IEC 60721 classifies the groups of environmental parameters and their severities to which a product is subjected while being transported ~~from one place to another after being made ready for dispatch from the manufacturing factory~~ and handled.

The most commonly used methods of transportation and handling have been taken into account, including the following:

- road transport: cars, ~~lorries~~, trucks, ~~animals~~, ~~conveyors~~;
- rail transport: trains, trams, ~~conveyors~~;
- water transport, inland and maritime: ships, ~~hovercraft~~, ~~conveyors~~;
- air transport: aircraft, ~~conveyors~~, jet, propeller, helicopter;
- ~~vertical transport~~ handling equipment: cranes, transport lifts, cableways, persons;
- conveyors;
- hand trollies.

The environmental conditions specified in this document are those ~~met by the product being transported~~ that the product can be exposed to while transported and handled. If the product is packaged, the environmental conditions apply to the package containing the product. ~~Only severe conditions, which may be harmful to products, are included.~~ If the product is unpackaged, the environmental conditions apply to the product.

Conditions for storage are given in IEC 60721-3-1.

~~The object of this standard is to classify groups of environmental parameters and their severities to which a product will be exposed when being transported on ground, water and in air, including loading and unloading.~~

~~A limited number of classes of environmental conditions are given, covering a broad field of application. The user of this standard should select the lowest classes necessary covering each of the conditions of the intended transportation. Some guidance for this is given in annex A.~~

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 60721-1, *Classification of environmental conditions – Part 1: Environmental parameters and their severities*

~~IEC 721-1: 1990, Classification of environmental conditions — Part 1: Environmental parameters and their severities~~
~~Amendment 1 (1992)~~
~~Amendment 2 (1995)~~

~~IEC 721-2-1: 1982, Classification of environmental conditions — Part 2: Environmental conditions appearing in nature — Temperature and humidity~~
~~Amendment 1 (1987)~~

~~IEC 721-3-0: 1984, Classification of environmental conditions — Part 3: Classification of groups of environmental parameters and their severities — Introduction~~
~~Amendment 1 (1987)~~

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Classification of environmental conditions –
Part 3-2: Classification of groups of environmental parameters and their
severities – Transportation and handling**

**Classification des conditions d'environnement –
Partie 3-2: Classification des groupements des agents d'environnement et de
leurs sévérités – Transport et manutention**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

CLASSIFICATION OF ENVIRONMENTAL CONDITIONS –

Part 3-2: Classification of groups of environmental parameters and their severities – Transportation and handling

FOREWORD

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This edition includes the following significant technical changes with respect to the previous edition:

- a) Clause 1: reworded and added handling.
- b) Clause 2: updated normative references.
- c) Clause 3: updated definitions.
- d) Clause 4: reworded and simplified.

- e) Clause 5: revised and updated. Several classes have been replaced by completely new classes based on the use of new information obtained from referenced Technical Reports.
- f) Table 1 through Table 5: updated.
- g) Table 6 deleted.
- h) Old annexes A to C removed except Clause A.3 that is incorporated in Clause 5.
- i) New Annex A.

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CLASSIFICATION OF ENVIRONMENTAL CONDITIONS –

Part 3-2: Classification of groups of environmental parameters and their severities – Transportation and handling

1 Scope and object

This part of IEC 60721 classifies the groups of environmental parameters and their severities to which a product is subjected while being transported and handled.

The most commonly used methods of transportation and handling have been taken into account, including the following:

- road transport: cars, trucks;
- rail transport: trains, trams;
- water transport, inland and maritime: ships;
- air transport: aircraft, jet, propeller, helicopter;
- handling equipment: cranes, transport lifts, cableways, persons;
- conveyors;
- hand trollies.

The environmental conditions specified in this document are those that the product can be exposed to while transported and handled. If the product is packaged, the environmental conditions apply to the package containing the product. If the product is unpackaged, the environmental conditions apply to the product.

Conditions for storage are given in IEC 60721-3-1.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

IEC 60721-1, *Classification of environmental conditions – Part 1: Environmental parameters and their severities*

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

CLASSIFICATION DES CONDITIONS D'ENVIRONNEMENT –

**Partie 3-2: Classification des groupements des agents d'environnement
et de leurs sévérités –
Transport et manutention**

AVANT-PROPOS

- 1) La Commission Electrotechnique Internationale (IEC) est une organisation mondiale de normalisation composée de l'ensemble des comités électrotechniques nationaux (Comités nationaux de l'IEC). L'IEC a pour objet de favoriser la coopération internationale pour toutes les questions de normalisation dans les domaines de l'électricité et de l'électronique. A cet effet, l'IEC – entre autres activités – publie des Normes internationales, des Spécifications techniques, des Rapports techniques, des Spécifications accessibles au public (PAS) et des Guides (ci-après dénommés "Publication(s) de l'IEC"). Leur élaboration est confiée à des comités d'études, aux travaux desquels tout Comité national intéressé par le sujet traité peut participer. Les organisations internationales, gouvernementales et non gouvernementales, en liaison avec l'IEC, participent également aux travaux. L'IEC collabore étroitement avec l'Organisation Internationale de Normalisation (ISO), selon des conditions fixées par accord entre les deux organisations.
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La Norme internationale IEC 60721-3-2 a été établie par le comité d'études 104 de l'IEC: Conditions, classification et essais d'environnement.

Cette troisième édition annule et remplace la deuxième édition, parue en 1997. Elle constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

- a) Article 1: reformulation et ajout de la manutention.
- b) Article 2: mise à jour des références normatives.

- c) Article 3: mise à jour des définitions.
- d) Article 4: reformulé et simplifié.
- e) Article 5: révisé et mis à jour. Plusieurs catégories ont été remplacées par des catégories complètement nouvelles sur la base de nouvelles informations obtenues à partir des rapports techniques référencés.
- f) Tableau 1 au Tableau 5: mise à jour.
- g) Tableau 6 supprimé.
- h) Suppression des anciennes annexes A à C à l'exception de l'Article A.3 qui est intégré dans l'Article 5.
- i) Nouvelle Annexe A.

Le texte de cette Norme internationale est issu des documents suivants:

FDIS	Rapport de vote
104/773/FDIS	104/783/RVD

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette Norme internationale.

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2.

Une liste de toutes les parties de la série IEC 60721, publiées sous le titre général *Classification des conditions d'environnement*, peut être consultée sur le site web de l'IEC.

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- amendée.

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CLASSIFICATION DES CONDITIONS D'ENVIRONNEMENT –

Partie 3-2: Classification des groupements des agents d'environnement et de leurs sévérités – Transport et manutention

1 Domaine d'application et objet

La présente partie de l'IEC 60721 classe les groupements d'agents d'environnement et de leurs sévérités auxquelles un produit est soumis lors de son transport et de sa manutention.

Il a été tenu compte des moyens de transport les plus couramment employés, y compris les moyens suivants:

- transports routiers: voitures, camions;
- transports ferroviaires: trains, tramways;
- transport par voies navigables, fluviales et maritimes: navires;
- transports aériens: avions (à propulsion, à hélice), hélicoptères;
- matériel de manutention: grues, monte-charges, téléphériques, personnes;
- courroies transporteuses;
- chariots manuels.

Les conditions d'environnement spécifiées dans le présent document sont celles auxquelles le produit peut être exposé lors de son transport et de sa manutention. Si le produit est emballé, les conditions d'environnement s'appliquent à l'emballage contenant le produit. Si le produit n'est pas emballé, les conditions d'environnement s'appliquent au produit.

Les conditions applicables au stockage sont données dans l'IEC 60721-3-1.

2 Références normatives

Les documents suivants cités dans le texte constituent, pour tout ou partie de leur contenu, des exigences du présent document. Pour les références datées, seule l'édition citée s'applique. Pour les références non datées, la dernière édition du document de référence s'applique (y compris les éventuels amendements).

IEC 60721-1, *Classification des conditions d'environnement – Partie 1: Agents d'environnement et leurs sévérités*