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Soft soldering fluxes — Classification and requirements —

Part 1:
Classification, labelling and packaging

Flux de brasage tendre — Classification et caractéristiques —

Partie 1: Classification, marquage et emballage

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ISO/CEN PARALLEL PROCESSING

This draft has been developed within the International Organization for Standardization (ISO), and processed under the **ISO lead** mode of collaboration as defined in the Vienna Agreement.

This draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel five month enquiry.

Should this draft be accepted, a final draft, established on the basis of comments received, will be submitted to a parallel two-month approval vote in ISO and formal vote in CEN.

To expedite distribution, this document is circulated as received from the committee secretariat. ISO Central Secretariat work of editing and text composition will be undertaken at publication stage.

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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ISO 9454-1 was prepared by Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 12, *Soldering materials*.

ISO 9454 consists of the following parts, under the general title *Soft soldering fluxes — Classification and requirements*:

— *Part 1: Classification, labelling and packaging*

— *Part 2: Performance requirements*

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Introduction

Fluxes assist molten solder to wet metal surfaces to be joined by removing oxides and related contaminations from the solder and surfaces of the parts during soldering. Fluxes also protect surfaces from oxidation an assist wetting of the basis metals by molten solder.

Care is necessary when selecting a flux for a particular application, in order to ensure an adequate service life of the assembly Factors such as the ease of residue removal, corrosiveness, possible health and safety hazards and the efficacy of the flux should all be considered.

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Soft soldering fluxes — Classification and requirements — Part 1: Classification, labelling and packaging

1 Scope

This part of ISO 9454-1 specifies a coding system for the classification of fluxes intended for use with soft solders, according to their active fluxing ingredients, together with requirements for labelling and packaging.

WARNING — This part of ISO 9454-1 deals with products which may be hazardous to health, or which may cause other hazards such as corrosion, fire, etc., if adequate precautions are not taken. It refers only to the technical suitability of substances and in no way absolves the testing laboratory, the supplier or the user from legal obligations relating to health and safety at any stage of flux manufacture or use.

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2 Classification of fluxes

Fluxes specified in this part ISO 9454-1 have been classified in terms of their main ingredients and shall be encoded in accordance with table 1.

For example, a phosphoric acid activated inorganic flux with a halide content < 0,01 % by mass, shall be encoded 3.3.1.1, a non-halide activated rosin flux shall be encoded 1.1.3.1.

3 Labelling and packaging

Fluxes supplied according to this part of ISO 9454-1 shall be packed in suitable containers, resistant to the flux they contain, and shall carry a label bearing the following information:

a) the supplier's name and address;

b) the name of the product;

c) the number of this part of ISO 9454-1 and the flux classification code;

d) the batch number;

e) the date of manufacture;

f) details of any legal requirements concerning aspects of safety.

Labels shall be made of material resistant to the flux in the container.

NOTE Additional labelling requirements may be agreed upon between the supplier and the purchaser in accordance with the rules and regulations of the country or countries in question.

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Table 1 — Classification of soft soldering fluxes according to their main ingredients

Flux type	Flux basis	Flux activation	Halide content % (by mass)
1 resin	1 rosin 2 resin (modified or synthetic)	1 no activator added 2 halide activated 3 non-halide activated	1 < 0,01 2 < 0,15 3 0,15 - 2,0 4 > 2,0
2 organic (low or non-resin flux)	1 water-soluble 2 slightly-water-soluble		
3 inorganic	1 salts in aqueous solution 2 salts in organic formulation	1 with ammonium chloride 2 without ammonium chloride	
	3 acids	1 with phosphoric acid 2 without phosphoric acid	
	4 alkalis	1 amines and/or ammonium carbonates	

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Annex A
(informative)

Grades of fluxes

Table A.1 indicates, for guidance, the various grades of fluxes and only refers to halide content. Flux selection can also be done from different points of view.

Table A.1 — Guidance for the uses of the various grades of fluxes

ISO-Code	Type description	Halides in % (by mass)	Guidance for use
1.1.1.1	on basis of rosin (colophony) without additives	0,01	electronics electrotechnology
1.1.2.2	on basis of rosin (colophony) with additives of organic activators containing halides (e.g. glutamic acid hydrochloride)	< 0,15	electronics electrotechnology electronic device construction metal goods
1.1.2.3	on basis of rosin (colophony) with additives of organic activators containing halides (e.g. glutamic acid hydrochloride)	0,15 - 2,0	electronics electrotechnology electronic device construction metal goods
1.1.2.4	on basis of rosin (colophony) with additives of organic activators containing halides (e.g. glutamic acid hydrochloride)	> 2,0	electronics electrotechnology electronic device construction metal goods
1.1.3.1	on basis of rosin (colophony) with additives of organic activators containing no halides (e.g. adipic, stearic, salicylic acid), but without amines, diamines or carbamide	< 0,01	electronics electrotechnology precision soldering metal goods
1.2.1.1	on basis of modified resinwithout additives	< 0,01	electronics electrotechnology
1.2.2.2	on basis of modified resin with additives of organic activators containing halides (e.g. glutamic acid hydrochloride)	< 0,15	electronics electrotechnology electronic device construction metal goods
1.2.2.3	on basis of modified resin with additives of organic activators containing halides (e.g. glutamic acid hydrochloride)	0,15 - 2,0	electronics electrotechnology electronic device construction metal goods

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