SLOVENSKI STANDARD
SIST ISO 710-4:1995

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Grafične oznake na detajlnih kartah, tlorisih in na geoloških prerezih - 4. del: Prikaz metamorfnih kamnin

Graphical symbols for use on detailed maps, plans and geological cross-sections -- Part 4: Representation of metamorphic rocks

Symboles graphiques à utiliser sur les cartes, les plans et les coupes géologiques détaillés -- Partie 4: Représentation des roches métamorphiques

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07.060	Geologija. Meteorologija. Hidrologija	Geology. Meteorology. Hydrology

SIST ISO 710-4:1995 **en**

International Standard 710/4

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

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It has been approved by the member bodies of the following countries :

Brazil	Germany, F.R.	Romania
Czechoslovakia	India	Sweden
Egypt, Arab Rep. of	Netherlands	United Kingdom
France	Poland	USSR

No member body expressed disapproval of the document.

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Graphical symbols for use on detailed maps, plans and geological cross-sections — Part 4 : Representation of metamorphic rocks

0 Introduction

Other documents in this series on graphical symbols for use on detailed maps, plans, and geological cross-sections include :

Part 1 : General rules of representation.

Part 2 : Representation of sedimentary rocks.

Part 3 : Representation of magmatic rocks.

Part 5 : Representation of minerals.

Part 6 : Representation of contact rocks and rocks which have undergone metasomatic, pneumatolytic or hydrothermal transformation or transformation by weathering.[1)]

Part 7 : Tectonic symbols.[1)]

1 Scope and field of application

This part of ISO 710 provides a series of symbols and ornaments for the representation of metamorphic rocks on detailed maps, especially large-scale maps, plans, and geological cross-sections.

The symbols are divided into two groups :

1) main types;

2) varia.

They are reproduced in two tables which, being derived from a logical system, may be completed easily in case of need.

1) At present at the stage of draft.

2 Main types

2.1 Principles of representation (see table 1)

2.1.1 Table 1 comprises the most important rocks of the three facies or zones of metamorphism. It is divided into three columns containing the symbols for the rocks of the facies of green schists, of amphibolites, and of granulites.

These three facies are roughly equivalent to the older groups of epizone, mesozone, and catazone rocks.

As the limits between the two groups characterized by a higher degree of metamorphism do not coincide, the subdivision being based on facies or zones, a dotted line is used to divide them.

2.1.2 The basic symbol for metamorphic rocks is a short wavy line. This basic symbol may be used to indicate metamorphic rocks in general, i.e. when no further information is needed or when the scale of the map makes a fine distinction impossible.

In conjunction with additional symbols, the wavy line is used to represent metamorphic rocks of the main types. Hence, it is crossed by one or two strokes to indicate the groups which have been subjected to higher grade metamorphism.

The basic symbol is to be found at the top of the table. Then, at the top of each column, symbols are indicated with a view to a more detailed representation. These symbols are the basic symbols for the three facies or zones of metamorphic rocks.

As in the case of magmatic rocks (see ISO 710/3), variation of the thickness is used to express the basicity of the rocks. The ratio of the widths of thin and thick lines should be 1 : 3.

Table 1 — Main types

Basic symbols	Facies of green schists (epizone)	Facies of amphibolites (mesozone)	Facies of granulites (catazone)
	Schist (sericitic) Phyllites	Mica schist	Acid gneiss
		Gneiss	Granulite (light)
	Green schist	Amphibolite	Hornblende + pyroxene gneiss
			Pyroxene, granulite
Examples of the representation of special rock types	Para rocks	Para rocks	Para rocks
	Ortho rocks	Ortho rocks	Ortho rocks
	Quarzitic schist	Muscovite quartzite	Sillimanite gneiss
	Quarziferous phyllite	Micaceous gneiss	Biotite gneiss
	Sericitic schist	Amphibolite Para- Ortho-	
	Sericitic chlorite schist		
	Micaceous calcareous schist	Calc silicate schist	
	Albite sericitic schist Para- Ortho-	Acid orthogneiss	
	Porphyroid (metamorphic acid volcanic rocks)	Plagioclase gneiss	
	Metadiorite	Hornblende orthogneiss	
	Porphyroid (metamorphic basic volcanic rocks)		
	Chlorite schist		
	Metadolerite		
	Metagabbro		
	Ultrabasic rocks, not highly metamorphic		
		Quartzite	
		Marble	

2.1.3 Some examples of the representation of special rock types are given in table 1. First, ornaments for the representation of para and ortho rocks are to be found. These may be used if no further information is required. In each column a subdivision between para and ortho rocks has been made and the rocks are generally set out from the acid to the basic type.

As far as possible, the characteristic rocks have been coordinated with each of the three facies (zones), but is not possible to observe this principle without exception. In particular, it is not applicable to some types of gneiss which can appear in the facies of amphibolites (mesozone) as well as in the facies of granulites (catazone). For these types of gneiss, two symbols have been provided which are a combination of the symbol indicating the degree of metamorphism and of either the modified symbol for the original rock or the symbol for the typical mineral.

For quarzite and marble, only one symbol has been adopted which shall be used in all facies (zones), because these rocks show the same nature in all three facies (zones).

2.2 Individual symbols

The symbols and ornaments for the different metamorphic rocks consist of the wavy line (with modifications depending on the degree of metamorphism) and the symbol for the original rock.

In order to indicate that the original rocks have been subjected to a transformation by metamorphism, their symbols, in particular those for plutonic and volcanic rocks, have been elongated and turned in such a way that they can be arranged on the same level as the wavy line that indicated metamorphism (see figures 1 and 2).

Original rock

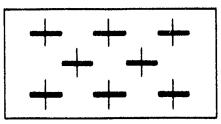

Figure 1 — Diorite

Metamorphic rock

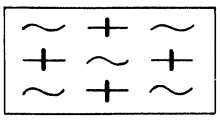

Figure 2 — Metadiorite

In this way, preferred orientation in the rock can be expressed by the disposition of the symbols on the map (see figure 3).

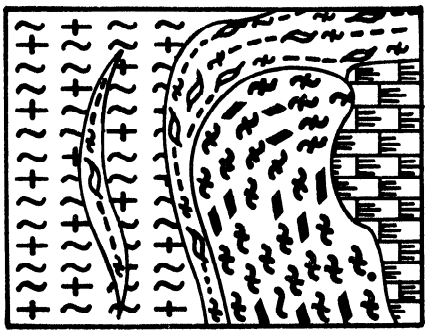

Figure 3 — Example of arrangement showing preferred orientations

When it is impossible to identify the original rock, the ornaments are composed of the wavy line and the symbol for the typical mineral (see figure 4).

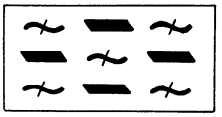

Figure 4 — Hornblende orthogneiss

Instead of the symbol for the mineral, the abbreviation composed of Latin letters (see 710/5) may be used (see figure 5).

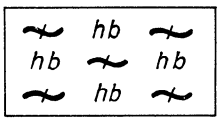

Figure 5 — Hornblende orthogneiss

In the case of transition from the original rock to the metamorphic type, the progress of transformation can be expressed by setting out the symbols as shown in figure 6.

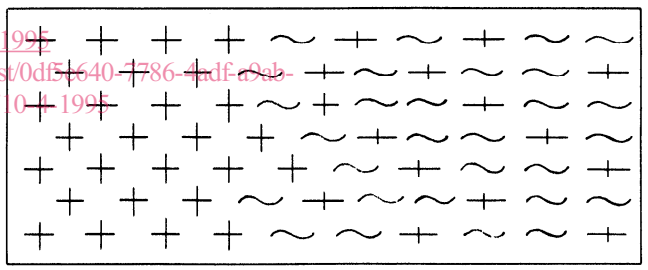

Figure 6 — Granite → albite sericitic schist

If the original rock is a magmatic rock, the symbol (Y) can be used instead of the symbol (+), when it is wished to distinguish two rocks of identical composition (see figure 7).

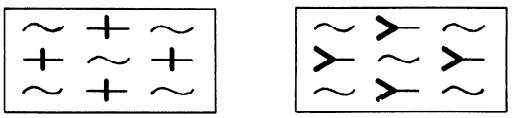

Figure 7 — Metadiorite

3 Varia

3.1 Principles of representation (see table 2)

Table 2 "Varia" is complementary to table 1 "Main types" (see clause 2). It contains symbols for rocks which are hardly suitable for the system used for the main types.

The table is subdivided into three groups containing

a) symbols for migmatitic rocks;

b) symbols for diaphthoritic rocks;

c) symbols for miscellaneous metamorphic rocks.

3.2 Groups of varia

3.2.1 Migmatitic rocks (indicated by ornaments Nos. 101 to 104)

A typical symbol has been chosen for migmatitic rocks which resembles a vein of veined gneiss. To this symbol is then added either the elongated symbol for the original rock or the symbol for a mineral and the symbol for metamorphism.

Charnockites are represented as an acid or intermediate magmatic rock crystallized directly in the conditions of the granulite facies; by variation of the number of symbols, the different degree of acidity of the charnockites can be expressed (see figure 8).

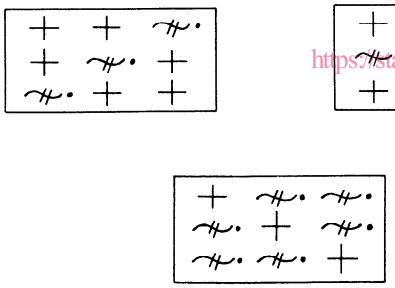

Figure 8 — Charnockite

3.2.2 Diaphthoritic rocks (indicated by ornaments Nos. 201 to 203)

Diaphthoresis is shown by adding one or two pairs of points to the symbol for metamorsphism. The symbol for metamorphism shows the zone of metamorphism after diaphthoresis : a simple wavy line is used for the epizone and a wavy line with a cross-stroke for the mesozone.

One pair of points is added when diaphthoresis has affected only one zone and two pairs when it has affected two zones.

3.2.3 Miscellaneous metamorphic rocks (indicated by ornaments Nos. 301 to 303)

Several types, which cannot be classified in either the other two groups, have been grouped together under the heading "miscellaneous metamorphic rocks".

The symbol for glaucophane schist consists of the elementary symbol for epizone and two oblique strokes indicating high pressure.

This symbol has the same value as the basic symbol for epizone and, in combination with other symbols as indicated in table 1, it can be used to represent all the rocks of the glaucophane schist facies.

The symbol for eclogite is a combination of the symbols for augite and for garnet. In order to facilitate the work of the draughtsman, a circle has been substituted for the pentagon which is the normal symbol for garnet.

Table 2 — Varia

Migmatitic rocks		
101	Veined granitic gneiss	
102	Anatectic biotitic gneiss (facies of amphibolites)	
103	Highly anatectic biotitic gneiss (facies of granulites)	
104	Charnockite	
Diaphthoritic (retro-morphosed) rocks		
201	Diaphthoritic green schist (mesozone → epizone)	
202	Diaphthoritic gneiss (catazone → epizone)	
203	Diaphthoritic gneiss (catazone → mesozone)	
Miscellaneous metamorphic rocks		
301	Glaucophane schist	
302	Eclogite	