

## Defects of terminology in law and technique

Defectos de la terminología en la ley y la técnica

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### ABSTRACT

The article deals with the formation of parallel different concepts that complicate the understanding of terms and categories used in the process of enforcement. Violation of the requirements to the concept formulation or to the selection of terms for their designation relates to the conceptual and logical and linguistic defects respectively.

**Keywords:** law, legal categories, definition, defect.

### RESUMEN

El artículo aborda la formación de diferentes conceptos paralelos que complican la comprensión de los términos y categorías utilizados en el proceso de aplicación. La violación de los requisitos para la formulación del concepto o la selección de términos para su designación se relacionan con los defectos conceptuales y lógicos y lingüísticos, respectivamente.

**Palabras clave:** ley, categorías legales, definición, defecto.

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## Introduction

Law is a system of conceptual (terminological) series. Violation of the requirements for the formulation of concepts or the choice of terms denoting them, respectively, refers to the conceptual-logical and linguistic defects. However, the interaction of concepts and terms occurs in the conceptual series. They should always see the main category and the categories subordinated to it, and the latter should be covered by a common sense with the main category.

In each conceptual row the basic concept and subordinated to it (with less narrow content) should be singled out. Parallel multisectoral conceptual series are formed, which complicate the understanding of the terms and categories that were used. In violation of the construction of conceptual series, it is difficult to understand to which series this or that concept belongs.

## Methodology

In the process of analysis of the causes of casting defects, as well as the development of a set of measures for their prevention, the technical literature on foundry offers examples of a slightly different classification of casting defects into groups, although the terminology as a whole is preserved.

The literature review allowed to establish the following types of classifications, formulations and descriptions of casting defects:

- GOST 19200-80 “Castings of iron and steel. Terms and definitions of defects”;
- classification given in the study Yu. F. Voronin, V. A. Kamaeva “Atlas of casting defects”;
- formulation, proposed by V. A. Ozerov, B. S. Kurmanali etc. “the Casting”;
- description of mechanisms of formation of defects, proposed by A. V. Lacedemonian, F. S. Kvasha “Casting defects and ways to correct them”.

In a more detailed comparison of the formulations and descriptions of defects is presented (Kazantsev et al., 2019; Kovalenko et al., 2018; Rozentsvaig et al., 2018).

Comparative analysis showed that the approaches to combining casting defects into groups and attempts on this basis to classify them into groups by type are different. Different interpretation of the same casting defect in each of the classification groups is connected, first of all, with the fact that the character of the defect manifestation is taken as the basis of the division, and not the cause of its occurrence.

Thus, in the process of describing the causes of the formation of casting defects and a set of measures to prevent them, there are a number of repetitions and differences in the interpretation of concepts. As a result, with the same cause of the casting defect, it can manifest itself in various forms.

## Discussion& result

The defects of legal relations include conflicts and inconsistency of legal norms, as well as violations of the construction of conceptual (terminological) series (Gifford et al., 2014; Hair et al., 2012; Kaklamanou et al., 2013; Lugg, 2007). The coherence of legal norms should be understood as their interaction, in which one rule logically flows from another, concretizing and developing it. Violation of the coordinated interaction of legal norms leads to such a legal defect as inconsistency of legal norms.

Interaction of legal and other concepts (categories, terms) occurs in the corresponding conceptual series. Conceptual dismemberment of the normative integrity of the legislation orders allows to detect stable links between concepts, as well as to prevent and eliminate defects in such links. In such series the basic concept and subordinated to it should always be allocated, and the last should be covered by the sense uniform with the basic concept or be recognized not relating to this series (Kozhokar, 2019).

Such situations affect not only legal technique, but also terminological approaches to the definition of, for example, various kinds of defects that have to be eliminated in various ways.

At the enterprises within the foundries, technologists and specialists have already studied the main types of flaw and the nature of its appearance. This allows us to make expert assessments and predict the appearance of casting defects and take a set of measures to prevent them.

The appearance of casting defects leads to the fact that the workers either correct all inaccuracies and deviations from the technological requirements (in the case of a corrected defect), or reject the part and send it to the melting (in the

case of an irreparable defect). In the foundry industry, the most common types of defects are: porosity, cracks, surges, chips, shells, scale, irregularities.

Standard GOST 19200-80 "Casting of iron and steel. Terms and definitions of defects" are established mandatory for use in documentation of all types, scientific and technical, educational, reference literature, science, technology and production terms and definitions of the basic concepts of defects in castings of iron and steel. However, this standard is largely focused on the methods of casting in sand molds and does not take into account the specifics of other types of casting and, in particular, investment casting. In the establishing document defects are divided into 5 groups without consideration of the reasons of their occurrence and measures of the prevention (Dobson, 2007; Fallis, 2013; Fisher et al., 2015; Gadotti, 2010; Kazantsev et al., 2019).

We can give a number of examples related to different interpretations of the same defect depending on the classification group:

- defect "shrink porosity" or "shrink shell", which occurs when the metal is cooled in the liquid state and crystallization. According to GOST 19200-80 "Castings of iron and steel. Terms and definitions of defects" and (Gulyaev, 1976) the defect refers to group 3 – "Discontinuity in the casting body", according to (Efimov, 1991) the defect is related to group 2 – "Shells", and according to (Sborshik, 2007) to the group "Surface and internal defects of castings»;
- defect "hot crack", manifested in the crystallization of the metal in the liquid-solid state (temperatures close to the crystallization interval). According to GOST 19200-80 "Castings of iron and steel. Terms and definitions of defects" and (Gulyaev, 1976). the defect is referred to group 3 – "Discontinuities in the casting body", (Efimov, 1991) the defect is referred to group 4 – "Cracks", and (Sborshik, 2007) to the group "Surface and internal defects of castings»;
- defect "warping", manifested by cooling the casting in the solid state. According to GOST 19200-80 "Castings of iron and steel. Terms and definitions of defects" and (Gulyaev, 1976; Sborshik, 2007) the defect is related to the group – "geometry Discrepancy", according to Gulyaev the defect is related to group 7 – "Distortion of castings in geometry".

The aggregating feature of these casting defects, in the above examples, is the fact that they are all associated with shrinkage processes occurring at various stages of casting formation. In other words, these are surface and volume defects associated with the course of shrinkage processes in metals and model compositions.

Defects of castings obtained by casting on smelted models have their own characteristics, both in the mechanism of formation and in the manifestation, and do not quite fit into the classification proposed by GOST 19200-80 "Castings of iron and steel. Terms and definitions of defects".

The wording of the casting defects most relevant to foundry technology – set definitions, you can optionally change the form of presentation, preventing trespass of concepts.

## Conclusion

Thus, nowadays the use of different types of classifications, formulations and descriptions of defects leads to the substitution of concepts in the presentation, provided that many defects have the same nature and measures to prevent them, but a different form of manifestation.

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