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ANALYSIS OF THE LITERATURE ON THE SCOPUS DATABASE ON THE EVALUATION OF THE HARDNESS OF CONSTRUCTION MATERIALS BASED ON ISO STANDARDS

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Abstract: In this article, an analysis of the literature on the evaluation of the stiffness of construction materials based on ISO standards was carried out using the information in the Scopus database.
Key words: Rigidity, scopus, analysis, ISO, standard, construction material, standardization, biblometric

Introduction. Around 1900, Marten proposed the following definition for the hardness test: "Hardness is the resistance of a body to penetration by another (harder) body." This simple but accurate definition has taken hold in technical circles and is as valid today as it was then. Technical hardness is a mechanical property used to describe the condition of a material or material.

Hardness cannot be measured directly, but is derived from primary measured variables (eg, test load, indentation depth, indentation area). Depending on the test method, the hardness value is determined by one of the following:

1. One of the geometric values that describe the test load and hardness limit (for example, the depth of the indentation)
2. Only through the length describing the retreat
3. Through other material response[7]

Static force methods are dominant for hardness tests on metals. Measurements are taken in terms of indentation depth or indentation volume left by the retreater. In hardness testing, a distinction is made between depth measurement methods and optical measurement methods for static methods.

The work carried out on this article can be divided into three

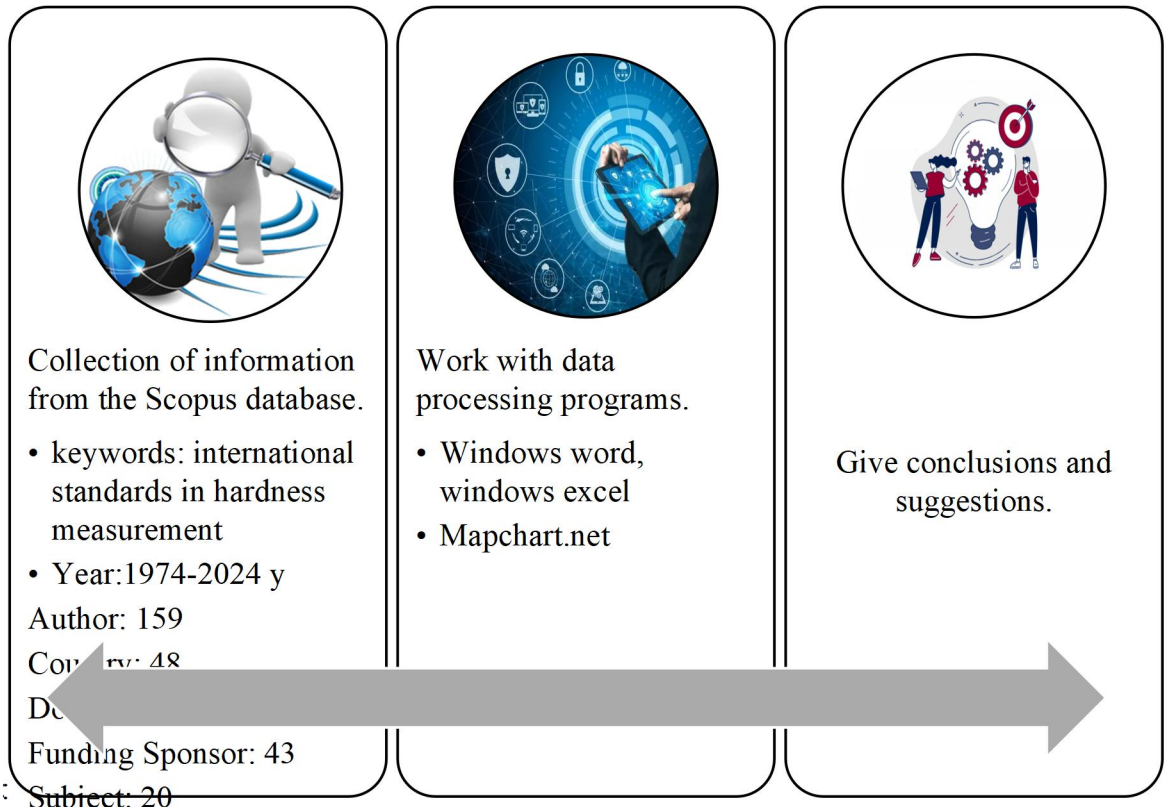


Fig.1. Content map of the article.

In 1974, the first scientific work on these topics was published.

Until now, that is, until 2024, 177 scientific works have been published, the main part of which is 35 in 2018, which is about 19.7 percent of the total developments.

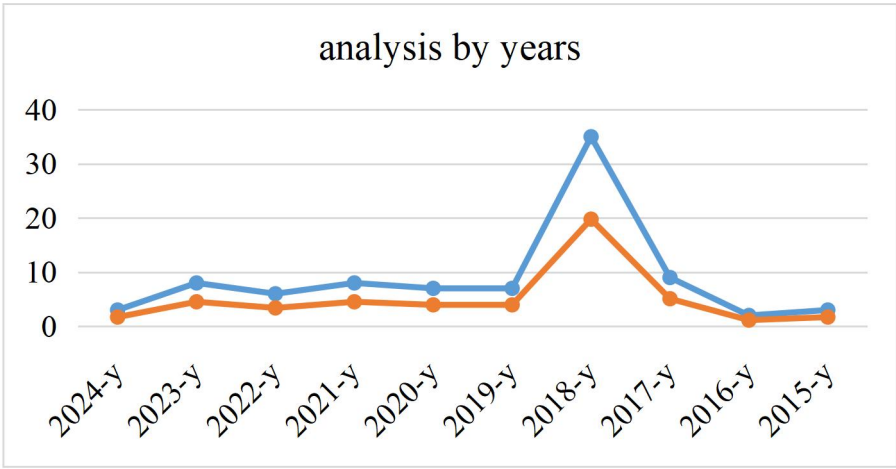


Fig. 2. Scientific works presented between 1970-2024.

About 159 authors have conducted research on the topic of "International standards in hardness measurement", and their top 10 indicators are given in Table 3 below. Accordingly, S. Low with a total of 6 articles has 2.8% of the total results, S. Nagarjuna has 2.3%, and K. Herrmann is in the top 3 with a share of 1.8%.

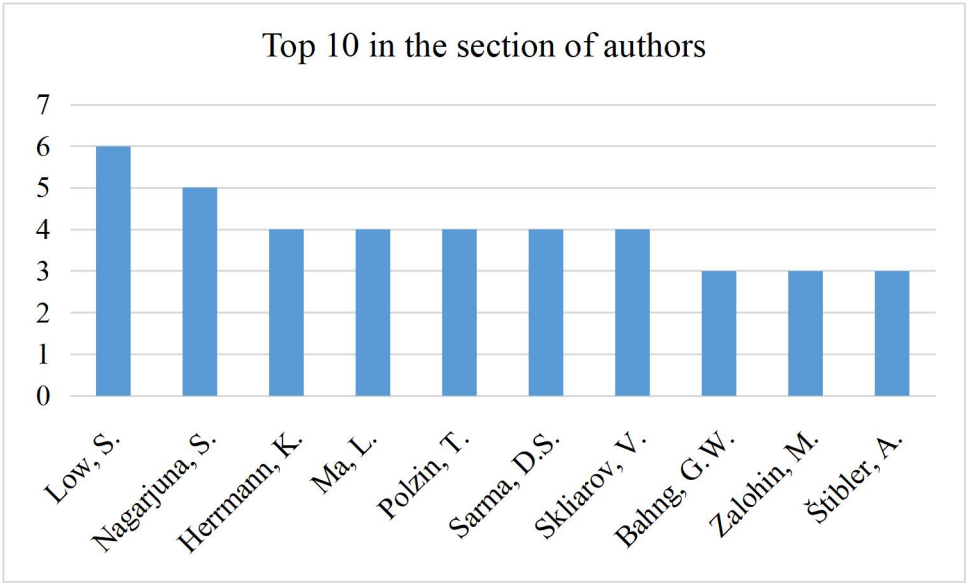


Fig.3. Top 10 in the section of authors.

When we analyze in the cross-section of countries, a total of 181 scientific papers were written by 48 countries, and in 37 scientific papers, the name of the country was not indicated.

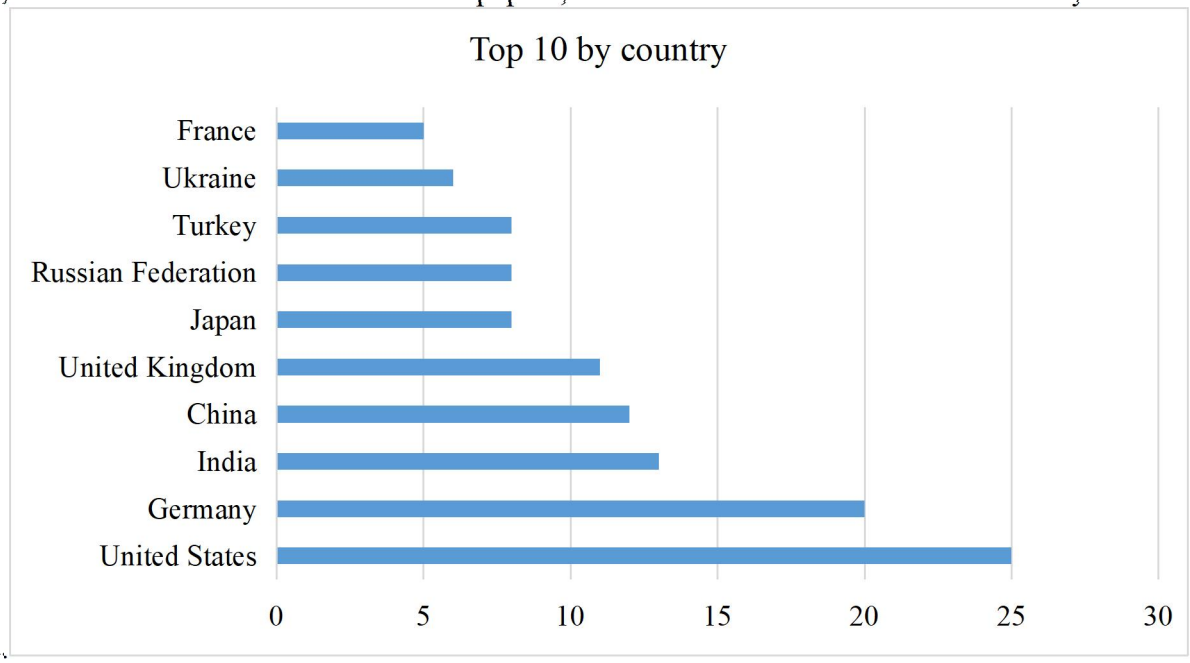
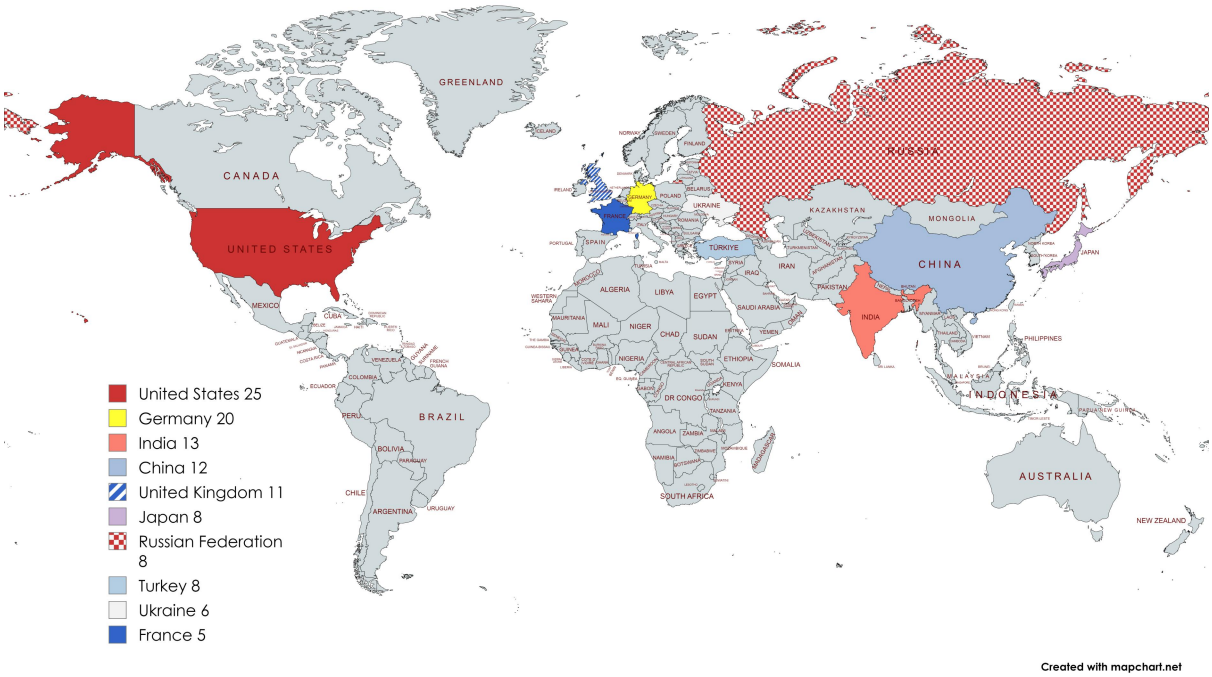


Fig.4. Top 10 by country.

Based on the data of Table 4, it can be said that the United States accounted for 11.4 percent of the total scientific works, Germany for 9.2 percent, and India for 5.9



percent.

Fig. 5. Visual analysis via Mapchart.net.

The data in Fig. 5 was analyzed according to the variant that visualized Fig. 4.

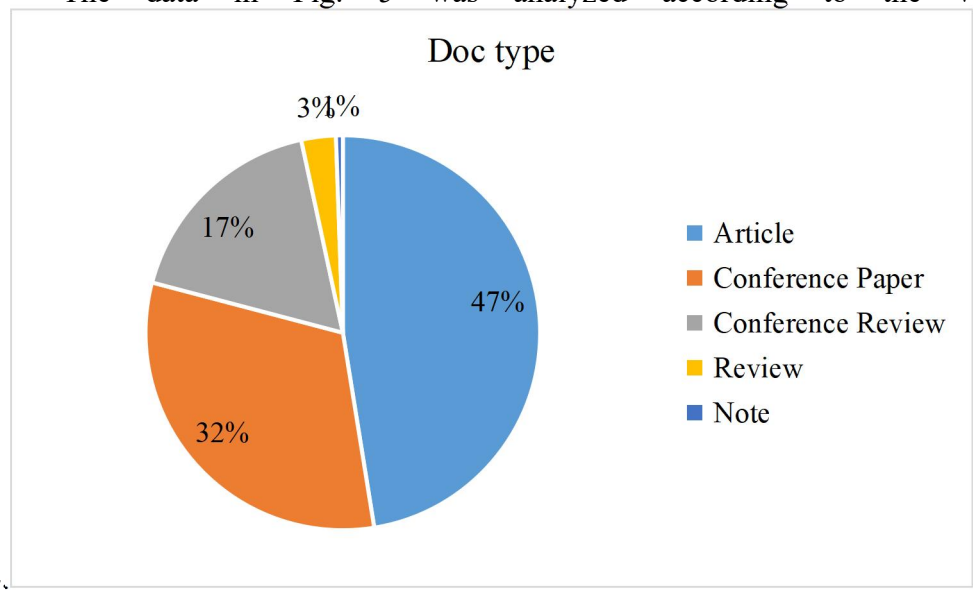


Fig.6. Analysis by type of documents.

A total of 177 scientific works were presented in 5 different forms: Article, Conference Paper, Conference Review, Review, Note.

Article	84
Conference Paper	56
Conference Review	31
Review	5
Note	1

Fig.7. Analysis by type of documents.

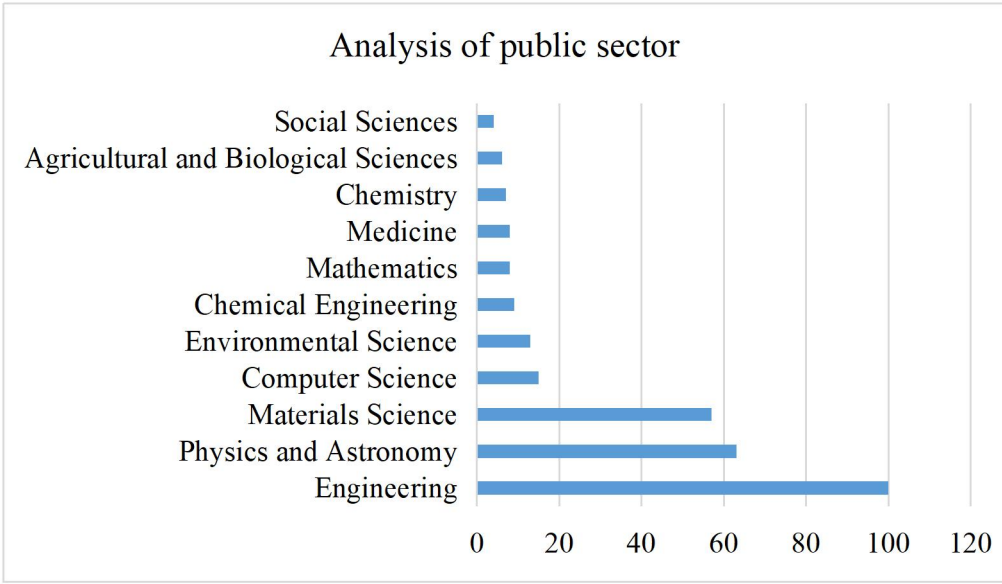


Fig.8. Analysis of public sector

The analysis by fields shows that the engineering field occupied the top 3 fields with the result of 32.5%, Physics and Astronomy field 20.5%, Materials Science field 18.5%.

Conclusion

This article is based on the results obtained from the scopus database, where the statistical results of the articles published on the topic were collected and the data was processed using special programs. Literature analysis is focused on this specific topic e'tibor va qanday ahamiyatliligini tushunishda yordam beradi.

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