Опережающая стандартизация (ОС) - это стандартизация, заключающаяся в установлении повышенных по отношению к уже достигнутому на практике уровню норм, требований к объектам стандартизации, которые согласно прогнозам будут оптимальными в последующее планируемое время [3].

Таким образом, можно отметить важную роль стандартизации и метрологии в нанотехнологиях. Нехватка стандартов и эталонов изрядно замедляет развитие и рост науки. И поэтому крайне необходимо, что бы общность этих наук не останавливалась и продолжала прогрессировать вместе.

Список информационных источников

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EVALUATION OF THE GAS-DYNAMIC BEARING PARAMETERS FOR THE BALL GYROSCOPE

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Gas-dynamic bearing is a support, in which the cleat and the bearing is separated by a layer of gas lubrication and the bearing capacity is formed due to the appearance of small gaps in the zone of high pressure. This pressure causes the appearance of the resultant lift force, which counterbalances of cleat mass. The lubricant is air or gas [1].

The application of gas-dynamic bearing is mainly determined by the features that are typical for natural gas lubrication [2]. The gas has a low viscosity. Ambient temperature has a little effect on it. Ambient pressure also has a minimal impact on viscosity. Such stability of gas viscosity and its small value opens up the possibility of using gas supports in devices, which operate at high speeds in a wide range of operating temperatures. Also, the gas bearings may be used in areas of high radioactivity as organic lubricant in such conditions loses handling properties.

In addition, the gas-dynamic bearings, unlike of any other, almost have not restrictions on service life due to lack of wear and tear in the course of work. Also, it has a good stability [2].

Therefore, the gas-dynamic bearings are widely used in a navigation instrument-making [1, 2], namely for precision gyroscopic devices.

The main goal of this research is evaluation of the possibility of the technical realization of the sensor element, which based on the gyro with a gas-dynamic ball rotor for informational-measuring drilling system [1].

Using this type of suspension in the informational-measurement system implies that the support will work in rigid mechanical and climatic conditions. Therefore, theoretical and experimental studies are needed to evaluate the operability of gas-dynamic bearing in such conditions.

The principal characteristics, the totality of which characterizes the efficiency, reliability and efficiency of gas-dynamic units are: bearing capacity, support stiffness, the magnitude of the viscous and dry friction moments (the last of these is important only in the initial time of launch) [1].

On the characteristics of gas-dynamic bearings, and especially on its bearing capacity, affects a series of geometric parameters (radius bearing, clearance, the presence of grooves, etc.) parameters of the gaseous medium (viscosity, the mean free path of gas molecules, temperature and pressure), magnetic attraction, which caused by an electric drive, the geometric error of the contact surfaces, as well as the injection ability of microprofile support, etc. [3].

The obtainment of the spherical bearings characteristics usually requires a complex mathematical formulation. Modern software products allow solving some basic problems of gas dynamics. Among others, the most suitable for solving this problem are: LS-DYNA, ABAQUS, ANSYS, Flow Vision and others.

The mathematical model is based on a solving of system equations, which based on fundamental laws of mass conservation, momentum and energy. The system closes the initial and boundary conditions, as well as defining relations. When taking into account the effects, which not accounted of grouped system equations, in the system introduced special equation turbulence model and so on.

Ultimately, the resulting synthesized system is a Navier-Stokes equation, which is the general equation of the laminar flow dynamics of a viscous gas.

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МОНИТОРИНГ ФОРМИРОВАНИЯ НАНОЧАСТИЦ МЕТАЛЛОВ

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Среди способов получения наночастиц большую группу образуют методы химического синтеза, основанные на восстановлении ионов до атомов и молекул в растворах, в условиях, благоприятствующих последующей агрегации атомов и молекул с образованием наночастиц.

Одним из современных методов является метод биохимического синтеза, который заключается в восстановлении ионов в обратных мицеллах природными биологически активными веществами (БАВ) с антиоксидантными свойствами (биофлаваноиды, кверцетин и т.д.). Цель работы состояла в том, чтобы исследовать восстановительные свойства масляных и водно-спиртовых экстрактов биологически активных веществ и доказать возможность их применения в биохимическом синтезе. Это позволяло бы получать наночастицы металлов в больших (практически значимых) количествах, стабильные на воздухе в течение длительного времени, что давало бы возможность проводить систематические исследования их свойств и разработки вариантов применения.

Объектами исследования были водно-спиртовые и масляные экстракты плодов и семян облепихи, коры дуба, почек березы и листьев крапивы.