intended for a nonpolar adherent should be nonpolar as well. On the other hand, very polar adhesive materials such as epoxy and cyanoacrylate are suggested for very polar adherents including metals.

Like plastics, adhesives can be categorized as general and engineering (structural). The difference is the level of intermolecular forces within the adhesive structure. Cyanoacrylate-based adhesives or silicone adhesives are generally cured by absorbing moisture from the air. Epoxy adhesives are generally supplied as two components and cured in the presence of a third component (primary, secondary, and tertiary amines). Polyester adhesives are cured using peroxides and catalyzed by amines. The curing process increases the cohesive forces at the expense of adhesive forces. Since an adhesive should possess a balance of cohesive and adhesive properties, the curing process should also be optimized. Coating and adhesive applications rely on similar concepts. A successful adhesive or coating process requires that the matrix onto which the adhesive is applied to be fully covered by the polymer material, which is generally applied in an emulsion form.

Coatings are used for protection purposes. A successful adhesive application requires careful understanding of the properties of the adhesive and adherents since an adhesive is generally trapped in between two or more materials. For coating applications, the coating polymer is generally exposed to a second environment such as air, oxygen, water, stomach fluid, intestinal fluid, solvents, and so on and so forth. This requires a thorough understanding of the coated matrix, coating material, as well as the service environment in which the material is expected to serve. Examples of coating materials are poly (vinyl acetate), acrylate esters, ethyl cellulose, and so on and so forth.

Conclusion. The thesis continues with a variety of polymer products including rubbers, plastics, fibers, adhesives, and coatings, and also highlights important properties of each group.

INDICATORS OF STERILIZATION OF MEDICAL PRODUCTS

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Introduction. Providing of the medicines and medical devices sterility is one of the most important tasks in creation of products of the required quality. For a number of different reasons, such as non-compliance with the sterilization mode or breakage of the device, the material being sterilized can remain contaminated. Sterilization indicators are used in order to control the quality of the process.

Aim. The aim of this research is to analyze the current range of merchandising sterilization indicators on the Ukrainian market.

Materials and methods. For the study of the topic were used Internet data (official websites of manufacturers, regulatory documents) and the results of own studies.

Results and discussion. To date, there is no universal indicator of sterilization, which could provide control of the sterilization effectiveness for all types of equipment. Control can be carried out by physical, chemical and biological methods. In the physical control method ampoules with a crystalline substance are inserted into the device together with the material to be sterilized, which under certain parameters melts or changes the consistency. With the chemical method, when the desired temperature is reached, the indicator changes color. Currently, to monitor the parameters of the operating modes of steam and air sterilizers are used special paper thermochemical indicators for single use. Paper strips are laid in different places with sterilized material and after the end of the cycle, the color change of the indicator is compare with standard. In the biological method bottles are placed in the device with napkins or paper disks soaked in a suspension of a heat-resistant spore-forming microbe and after sterilization disks are incubated in a meat-peptone broth. At proper sterilization the clear broth should not be muddy. Only the biological method and biological indicators can be reliable for determining the effectiveness of sterilization. Physical and chemical tests are designed for operational control and allow to monitor compliance with the parameters

of steam, gas, air sterilization, temperature, pressure. The most commonly used chemical indicators are divided into six classes: Class 1 – indicators of the external and internal process, which are placed on the outer wall of the product packaging and change color during sterilization; Class 2 – indicators that do not control sterilization parameters, but are intended for use in special tests, for example, to determine the efficiency of a vacuum pump and the presence of air in the sterilizer chamber; Class 3 – single variable indicators that determine only one sterilization parameter, for example, sterilization temperature but not exposure time; Class 4 – multivariable indicators that change their color only when several parameters are exposed at the same time; Class 5 – integrating indicators that respond to all critical parameters of the sterilization method; Class 6 – simulating indicators that are calibrated according to the specific parameters of sterilization modes, in which they are used and respond to all critical parameters of the sterilization method. Emulating indicators are the most modern. They clearly record the quality of sterilization with the correct ratio of all parameters – temperature, saturated steam, time. Within each of these groups, indicators are divided by the sterilization modes for which they are intended.

There are also disposable chemical indicators of steam sterilization, which are produced in the form of rectangular strips, the base of which is made of film and paper. On one side of such indicators marking and two color marks are applied, one of which is an indicator, and the other is a standard of comparison. The red-orange indicator label irreversibly changes its color when critical parameters reach certain values during steam sterilization.

Indicators can be used inside sterilized items or special packaging for sterilization. Steam sterilization with the use of such indicators is carried out in steam devices in which steam blowing removes air from the sterilization chamber.

In the State Register of medical equipment and medical devices of Ukraine, 9 indicators of sterilization of manufacturing companies are registered: 3M Center (USA), "ГЕНЕЗІС " (Ukraine), gke-GmbH (Germany), " Медикон ЛТД " (Russia), DGM Pharma Apparate Handel AG (USA), "ВИНАР" (Russia), "Медтест-СПб" (Russia). Based on the results of a merchandising study of sterilization indicators, it was found that the chemical indicators of firms are also represented on the Ukrainian market: Альянс Групп (Ukraine), Бел-Медикон (Belarus) and biological indicators of the manufacturer 3M Center (USA).

Conclusions. Monitoring the effectiveness of sterilization plays a significant role in medical devices quality ensuring. Currently, the production of sterilization indicators is very important, since the production of sterile medical products is actively developed, which requires constant quality control. Using sterilization indicator greatly facilitates this process and contributes to timely determine any deviations in the sterilization parameters. The market of indicators of sterilization in Ukraine is characterized by the predominance of imported products. Promising is the opening of domestic industries that would be engaged in the development of the 6th class of sterilization indicators, which are the most modern and promising. Therefore, this direction in science is progressive and relevant, enabling more promising research achievements.

GENERAL COMMODITY ASPECTS OF ORTHOSES

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Introduction. About 650 million people, representing about 10 percent of the world's population, are disabled. According to WHO, this figure is increasing, response to population growth, achievements in medical science and population ageing. Unfortunately, the number of people with disabilities in the world is growing every year. Therefore, the study of the features of orthoses, providing