ISSN NO: 2770-4491
Date of Publication:07-01-2023

Important Aspects in the Application of Composite Materials and New Methods of Application

Azimov Sarvarbek Qayumjon ugli
Andijan machine-building institute – master student,Uzbekistan
e-mail: sarvarbekazimov384@gmail.com, tel:932565881
Yusupov Bunyodbek Abdukarim ugli
Andijan machine-building institute – bachelor student,Uzbekistan
e-mail: bunyodbekyusupov3181@gmail.com, tel:916043181
Madina Zarbotova Qaxromon qizi
Andijan machine-building institute – bachelor student,Uzbekistan
e-mail: zarbotovamadina@gmail.com, tel:940575101

Annotation: This article describes the methods of applying composite materials, new application processes, disadvantages and solutions to it.

Keywords: Composite materials, ferrous metals,dispersion-compacted, plastic, matrix, polymer.

Introduction

Some of these important areas of accelerating the development of Science and technology are reflected in this article.Modern mechanical engineering is the main consumer of metals produced in our country. In stanoxosis, in the automotive and aviation industries, in electronics and radio engineering, a huge number of machine and pribor details are made from metals.The metals used in the technique are mainly divided into two gruppas – ferrous and non-ferrous metals. Ferrous metals include iron and its compounds (cast iron, steel, ferrocotylates). The rest of the metals and their alloys make up the gruppas of non-ferrous metals. Until now, iron and its alloys, which are considered the main mechanical engineering material, are of particular importance within metals.[1]

90% of the metals produced in World quantities are iron and its alloys. This is explained by the fact that ferrous metals have important physical and mechanical properties, as well as iron ores are widespread in nature, while the production of cast iron and steel is inexpensive and uncomplicated. In addition to ferrous metals, non-ferrous metals are also important in the technique. This is explained by their specific significant series of physico-chemical properties that are not found in ferrous metals.[2]

Literature analysis and methodology on the topic

Composite materials are materials that do not interact much, are formed from the volumetric combination of chemically different components (mixtures), and the components are separated from each other by a clear boundary. The best properties of any component (strength, resistance to eating, etc.).) in order to embody the composite materials are represented by indicators that are not characteristic of any of them. Typically, the composite material is a plastic (metal or nemetall — inorganic or organic) base or matrix, as well as inclusions: metal powder, fiber, thread crystals, thin-wire polishing, aerating, etc.will consist of.[3]

Types of composite materials: fibrous (reinforced with fibers or stringy crystals); dispersion-compacted (reinforced with dispersed particles) and layered (pressed or rolled various materials).Important technological methods for the preparation of composite materials: impregnation of matrix material on reinforcing (reinforcing) fibers; shape the reinforcement and Matrix tapes in a press mold; cold pressing and then Browning the components; spraying and then clamping the matrix into the reinforcement; welding multi-layer tapes of the components by diffusion method; rolling the reinforcing elements together with The Matrix and yes kazos.Composite materials aviation, Cosmonautics, rocket engineering, automotive industry, mechanical engineering, mining and ore industry, construction, chemical industry, textile, q. x., used in household appliances, radio engineering, energy, pipe manufacturing and other industries.[4]

Plastic materials or plastics are organic materials based on synthetic or natural high-molecule compounds. They have the ability to change their shape as a result of heating and pressure and maintain a

ISSN NO: 2770-4491
Date of Publication:07-01-2023

given shape after cooling.Plastics, plastic masses, plastics — materials obtained on the basis of natural or synthetic high-molecule compounds. It is molded under the influence of heat or pressure and firmly jumps its molded shape.[5]

Products from plastic are distinguished from other materials by their lightness, electrical current, heat resistance, resistance to atmospheric influences, resistance to eroding environments, sudden changes in temperature, high mechanical strength, and the possibility of making complex shaped items.Plastics are divided into thermoplasts and reactoplasts according to the type of polymers. Thermoplasts contain linear high-molecule compounds or sopolymers (polyethylene, polystyrene, polyvinyl chloride, etc.) there is. Plastic, built on the basis of linear polymers, also contains plasticizers, paints.[6]

Research Progress

Important technological methods for the preparation of composite materials are: impregnation of matrix material on reinforcing (reinforcing) fibers; shaping the reinforcement and Matrix tapes in a press mold; cold pressing and then roasting the components; spraying and then clamping The Matrix on the reinforcement; welding multi-layer tapes of components by diffusion method; rolling the reinforcing elements together with The Matrix and ho Aviation, Cosmonautics, rocket engineering, automotive industry, mechanical engineering, mining and ore industry, construction, chemical industry, textile, q with composition. x., used in household appliances, radio engineering, energy, pipe inside and other industries. Plastic materials or plastics are organic materials based on synthetic or natural high-molecule compounds.[7]

They have the ability to change their shape as a result of heating and pressure and maintain a given shape after cooling. Plastics, plastic masses, plastics — materials obtained on the basis of natural or synthetic high-molecule compounds. It is molded under the influence of heat or pressure, and its molded shape is Mustahkam. Products made of plastics are distinguished from other materials by their lightness, electrical current, heat resistance, resistance to atmospheric influences, resistance to eroding environments, sudden changes in temperature, high mechanical strength, and the possibility of making complex shaped items. Plastics are divided into thermoplasts and reactoplasts according to the type of polymers. Thermoplasts contain linear high-molecule compounds or sopolymers (polyethylene, polystyrene, polyvinyl chloride, etc.).) there is.

Results And Discussion

Currently, composite materials are materials of complex composition, multi-phase construction, created by the method of choosing the ratio of components (founders) by volume. In composite materials, each phase will have its own limit.It is called the component (matrix), which provides a single whole of composite materials – binding to the organizer. The arrangement of other components (fittings, complement and hakazo) in this matrix may or may not obey a certain geometric law. Between the Matrix and the inserts is a special thin layer, which marks the surface of the separation.[8]

When dividing composite materials into classes, the type of Matrix or fittings and inserts, the characteristics of the micro-structure and the method of obtaining the material are also considered.Depending on the type of matrix material, composite materials can be divided into the following types: metal, matrix, aluminum, plastic, rubber, film and skewers.

Depending on the nature of the component, composite materials are based on the following four groups:
a) It contains metal or metal alloy;
b) contains inorganic compounds of oxides, carbides and nitrides;
c) contains non-metallic element, carbon, boron, etc.k. li component borly;
d) components from a combination of organic substances (epoxide, polyephiryl, phenol, etc.k. tar) is formed.

Composite materials have a much higher relative bickness (E/r) and relative thoroughness (ab/p) compared to the current constriction mate - rials, the elasticity module of the composite material can be lifted by carefully placing it in the same direction on the desired side.[9]

The reliability of composite materials is also high. In ordinary alloys, breaking and its growth goes quickly during Operation. In the composite material, the cracked finish begins with The Matrix. It can not grow, because on the way it goes to the pouring filler.[10]

ISSN NO: 2770-4491
Date of Publication:07-01-2023

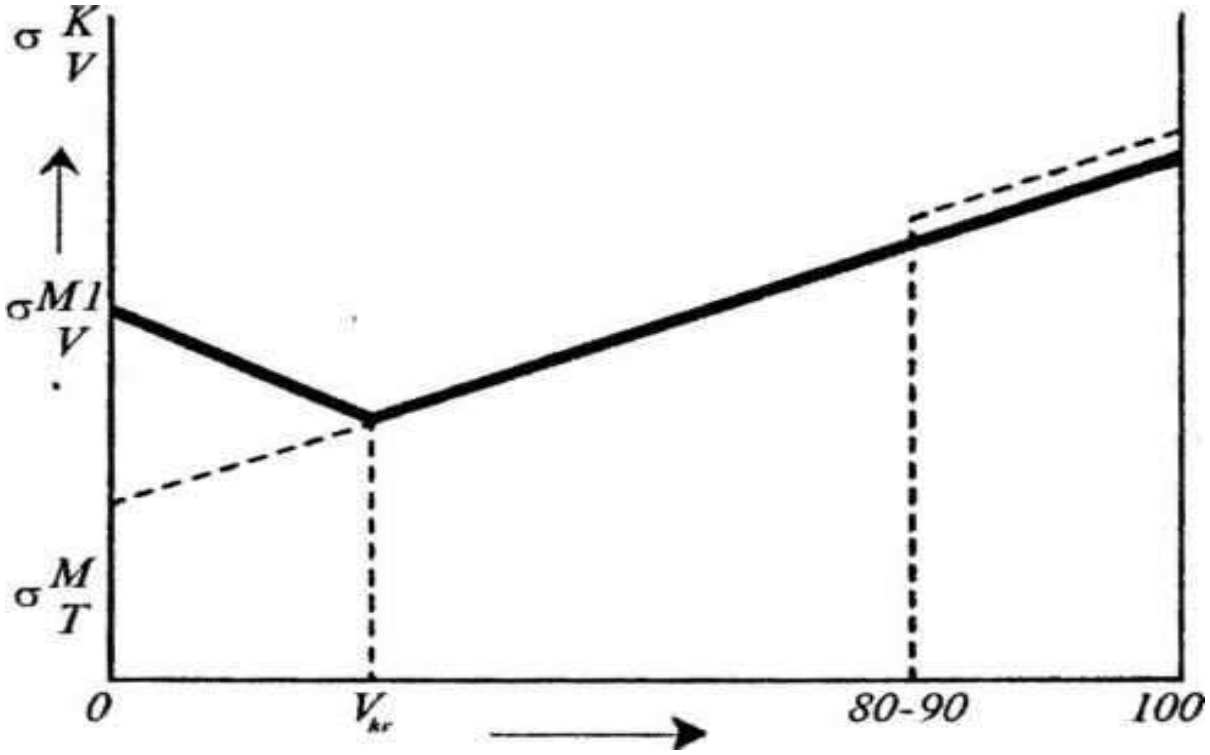

Figure 1.The effect of heat on the strength of the composite material.

The heat tolerance of oxide depends on the number, size of the particles, the size, shape and construction of both Matrix dipoles. These dipoles of the matrix are formed under pressure and during the period of thermal operation.The heat tolerance of VDU-1, VDU-2, VDU-3s is lower than that of nickel-based heat-resistant poms at normal temperatures. But, with the temperature rise, the heat tolerance of VDU1 (strength at the same temperature) will be greater than the strength of nickel-based heat-resistant steels for the temperature.

Conclusions

In the automotive industry at production enterprises in our country, new composite materials should be widely used in construction machinery. The advantage of composite materials over all other industrial materials is that composite materials are very perfect in terms of toughness and high durability with low raw materials consumption. Moreover, one can easily put forward the idea that composite materials are the foundation of the future industry.[11]

The reason is that even the “mobilephones”, which have become massive even in the current period, are actually composed of composite, joint materials. And the basis of many new technical discoveries that are still being produced now is also composite materials. As a result of the development of science techniques, there are also major changes in metallurgy. Instead of metal, new types of products are produced. For example: a material that can best be equated with steel or aluminum alloys is composite or composite materials. According to encyclopedic materials, the meaning of “composite” is given as follows: “metal or non-metallic materials with a reinforcement in a given direction. One of the modern composite materials is reinforced concrete”.[12]

As you know, when obtaining reinforced concrete, the steel is hardened concrete around the reinforcement. The result is a kind of monolithic dressing, and concrete works mainly on compressive strength, reinforcement-drawing force.About 10 enterprises in Uzbekistan process plastic. Of these are specialized enterprises of Tashkent plastic plant, Melonaron Construction Products plant, Jizzakh plastic production plant. Plastic materials or plastics are organic materials based on synthetic or natural high-molecule compounds. They have the ability to change their shape as a result of heating and pressure and maintain a given shape after cooling. In the period of rapid development of our economy, the needs of people are also increasing. At the same time, in modern housing construction, raw materials are mainly composed of composite materials. Solid

ISSN NO: 2770-4491
Date of Publication:07-01-2023

composite material concrete mixtures are formed and widely used as a result of the Jipping of metal, reinforcement structures that strengthen the level of monolith in the foundation of a building, structure.[13]

References

1. Azimov Sarvarbek Qayumjon ugli, Shirinboyev Mirzabek Ilhomjon ugli. (2022). DEVELOPMENT OF TECHNOLOGY FOR CREATING POLYMERIC COMPOSITE MATERIALS BASED ON POLYVINYLIDENFTORIDE AND DISPERSED FILLERS. EURASIAN JOURNAL OF ACADEMIC RESEARCH, 2(13), 828–835. https://doi.org/10.5281/zenodo.7467355
2. Ro‘zimatov Muxammadjon Abdumo’min o’g’li, Azimov Sarvarbek Qayumjon o’g’li, Shirinboyev Mirzabek Ilhomjon o’g’li, DVIGATELLARINING QUVVATI VA TEJAMKORLIGINI ORTTIRISH YO‘LLARINI TAXLIL QILISH , Новости образования: исследование в XXI веке: Том 1 № 5 (2022): Новости образования: исследование в XXI веке
3. MEN SEVGAN YETUK OLIMLAR Karimova Muyassarxon Abduqayumovna, Azimov Sarvarbek Qayumjon o‘g’li Journal of new century innovations 19 (5), 125-129, 2022
4. Muxammadjon Abdumo’min o’g’li, R. , Sarvarbek Qayumjon o’g’li, A. и Safarali Sulaymonovich, T. 2022. DEVELOPMENT OF A MACHINE FOR CUTTING COTTON. Новости образования: исследование в XXI веке. 1, 5 (дек. 2022), 192–198.
5. YER OSTI QUVURLARIGA GRUNT BOSIMI. BIR JINSLI GRUNTDA JOYLASHGAN QUVURGA GRUNTNING O ‘RTACHA VERTIKAL BOSIMI
6. QI Tavakkal o'g’li, SM Ilhomjon o'g'li, AS Qayumjon o'g'li - Новости образования: исследование в XXI веке, 2022
7. Muxammadjon Abdumo’min o’g’li, R. ., Sarvarbek Qayumjon o’g’li, A., & Mirzabek Ilhomjon o’g’li, S. . (2022). DVIGATELLARINING QUVVATI VA TEJAMKORLIGINI ORTTIRISH YO‘LLARINI TAXLIL QILISH. Новости образования: исследование в XXI веке, 1(5), 199–206. извлечено от http://nauchniyimpuls.ru/index.php/noiv/article/view/2305
8. Carriers lifetime in silicon bases solar cell Sarvar Azimov, Avazbek Alisherovich Mirzaalimov Молодой ученый, 97-101, 2020
9. Potential barrier in silicon solar cells Sarvar Azimov, Avazbek Alisherovich Mirzaalimov Молодой ученый, 94-97, 2020
10. Temperature characteristics of semiconductor diode Sarvar Azimov, Avazbek Alisherovich Mirzaalimov Молодой ученый, 85-89, 2020
11. Mathematical analyze of optical properties of solar cells Hajrullo Aslonov, Odilbek Dehkonboev, Sarvar Azimov Молодой ученый, 6-9, 2020
12. THE LIFETIME OF CHARGE CARRIERS IN SILICON-BASED SOLAR CELLS U Ismoilov, N Mirzaalimov, S Jurayeva, B Negmatov, S Azimov, A Alijonov, M Zulunova Deutsche Internationale Zeitschrift für zeitgenössische Wissenschaft, 27-29, 2021
13. IV CHARACTERISTICS OF SEMICONDUCTOR DIODE Jasurbek Gulomov, Sarvar Azimov, Irodakhon Madaminova, Hayrullo Aslonov, Odilbek Dehqonboyev Студенческий вестник, 77-80, 2020
14. Exploring working principle of vacuum diode by virtual laboratory Sarvar Azimov