In conclusion, saving the environment is a task that lies on the shoulders of each of us. We must act now to ensure the future of our planet and the next generations. With our awareness, efforts, and cooperation, we can achieve a sustainable future for all living beings on Earth [2].

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ENERGY-INTENSIVE MATERIALS AND PRODUCTS: APPLICATIONS AND PROSPECTS IN BELARUS

Energy-intensive materials are substances capable of releasing significant amounts of energy under certain conditions. These materials play a key role in industries such as aerospace, defense, chemical production, and mining. In Belarus, the use of energy-intensive materials has both industrial and research significance. This report examines the types of such materials, their applications, and the enterprises involved in their development and utilization.

Main Types of Energy-Intensive Materials.

Energy-intensive materials include substances that release energy through chemical or physical processes. The main types are:

Explosives:

- TNT (trinitrotoluene), RDX (hexogen), HMX (octogen).
- Used in mining, construction, and defense.

Fuels:

- Solid rocket fuels, liquid propellant mixtures (e.g., kerosene + liquid oxygen).
- Applied in aerospace and military technologies.

Pyrotechnic Compositions:

- Mixtures for signal and illumination devices, fireworks.
- Used in entertainment, rescue operations, and military applications.

Dual-Purpose Energetic Materials:

- Mixtures based on ammonium nitrate (ANFO).
- Used in agriculture and industry.

Applications of Energy-Intensive Materials in Belarus

Belarus actively utilizes energy-intensive materials in both industrial and research contexts. The main areas of application include:

- Mining and Construction.
- Use of explosives for rock fragmentation.
- Example: OJSC "Belaruskali" employs industrial explosives for potash mining.

Defense Industry:

- Manufacturing and development of munitions, rocket engines, and pyrotechnic devices.
- Key enterprises include: OJSC "Peleng," OJSC "Planar," and facilities under the State Military-Industrial Committee of Belarus.

Chemical Industry:

- Production of fertilizers and explosives based on ammonium nitrate.
- Example: OJSC "Grodno Azot" and OJSC "Mogilevkhimvolokno."

Scientific Research:

- Research into new energy-intensive materials at Belarusian State University and the Institute of Physics of the National Academy of Sciences of Belarus.

Efficiency and Safety Issues.

Belarus has a well-developed infrastructure for working with energy-intensive materials, but safety remains a key challenge. For example, explosives require strict control at all stages of production, transportation, and use. Government agencies, such as the Ministry of Emergency Situations, play a crucial role in ensuring safety.

Economic Factor.

Energy-intensive materials have high export potential. Belarus exports fertilizers and components for explosives to CIS and EU countries. However, competition in the global market requires constant technological improvement.

Environmental Aspects.

The use of energy-intensive materials possesses environmental risks.

Conclusion

Energy-intensive materials play a vital role in Belarus's economy and industry. They are used in various sectors – from mining to rocket engine production. The development of this field requires balancing safety, environmental sustainability, and economic efficiency. Belarus has the potential to further improve its technologies and strengthen its position in the global market for energy-intensive materials.

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TOXIC EFFECTS OF HEAVY METALS

The term “heavy metal” refers to any metallic chemical element that has a relatively high density and is toxic or poisonous at low concentrations. Examples of heavy metals include mercury (Hg), cadmium (Cd), arsenic (As), chromium (Cr), thallium (Tl), and lead (Pb).

Naturally heavy metals are used in industry. Examples of heavy industries are aerospace, shipbuilding, infrastructure building, chemical production and steel production.

To a small extent heavy metals enter our bodies via food, drinking water and air. However, at higher concentrations they can lead to poisoning. This is the main problem for humans. Heavy metal toxicity can result in damaged or reduced mental and central nervous function, lower energy levels, and damage to blood composition. Long-term exposure may result in slowly progressing physical, muscular, and neurological

You might think that heavy metals are rarely used in daily life, but in fact this is not true. We interact with small amounts of heavy metals every day, like when you check the temperature of your thermometer, which uses mercury. Heavy metals like lead, arsenic, mercury, aluminum, zinc, chromium and iron