воздействия отходов промышленности на природу, но не решают проблему прогрессирующего их накопления в окружающей среде и, следовательно, нарастающей опасности проникновения в биосферу вредных веществ под влиянием техногенных и природных процессов.

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FEATURES OF SECURITY EQUIPMENT MAINTENANCE MAN-CAUSED BY RECYCLING ENERGY MATERIALS.

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The urgency of problem of storage, processing and utilization of ammunition in Ukraine increased in recent years. The different ammunition utilization means was considered. The choice of rotating drum crystallizer for utilization of trotyl was grounded.

At present on more than 200 depots are stored about 2 million tons of ammunition, half of which requires utilization. 244 thousand tons of ammunitions needs in the immediate recovery, including – 24 thousand tons of missiles. It is consider that in the year 10-15 thousand tons of obsolete ammunition. Capacity of state and commercial entities, who work in the field of recycling, can destroy just about 25 thousand tons per year.

To ensure technological security in the enterprise control of energy-saturated materials requires special attention and skills of the staff, as well as compliance with certain requirements for equipment used. The main requirements are:

- High reliability and the timely repair of equipment;
- Increased level of mechanization and automation of production;
- The circuitry of technological and waste water from device of washout and hydraulic cutting sheet by water with high and very high pressure, as well as from ablution of equipment contaminated with suspensions of particles of explosives, aluminum, paint could be electrically connected for reuse. Used water (or other subsidiary working environment) must pass a series of additional cleanings before release into the environment.

For proper and safe operation of the equipment, it is necessary for the staff to systematically monitor the general condition and mode of operating designs, to watch closely for work of auxiliary equipment in a timely eliminate to arising faultiness.

It is also important to take into account specific features of the technology for demilitarization of ammunition. Energy-saturated materials in recyclable munitions are extremely sensitive to mechanical and thermal effects, which is potentially explosive, and as a consequence, the fire hazard. In addition, munitions are often received for disposal in violation of the outer shell (metal casing can be eroded by corrosion or simply broken), that complicates the safe transport and storage of such a ammunition, and requires extremely careful handling.

The slightest violation of the requirements for the operation of the equipment or the storage of obsolete ammunition without complying with the rules established by the legislation could lead to serious consequences (fire on ammunition storage facilities in Artemovsk (2003), explosions in the warehouses of artillery ammunition in Novobohdanivka (2004), explosions and fires at a military arsenal in Lozovoy (2008)).

In Ukraine, the most common methods of disposal of ammunition are following:

1. to remove explosives from munitions filled with trotyl and other meltable materials based on it, are used by different variants of the contact and noncontact heating and melting of explosives vapor;

2. large munitions filled with mixed fused explosives are utilized by different ways leaching of high-boiling inert liquid, and high pressure water;

3. ammunitions filled with infusible explosives of type A-1X-1 (phlegmatized RDX) and A-1X-2 (mixture of RDX phlegmatized with 20% aluminum powder) are utilized by different ways of mechanical destruction of explosive charge.

The most effective way is the utilization of trotyl by crystallization on the crystallizer drum. On the figure 1.1 show a diagram of a rotating crystallizer drum.

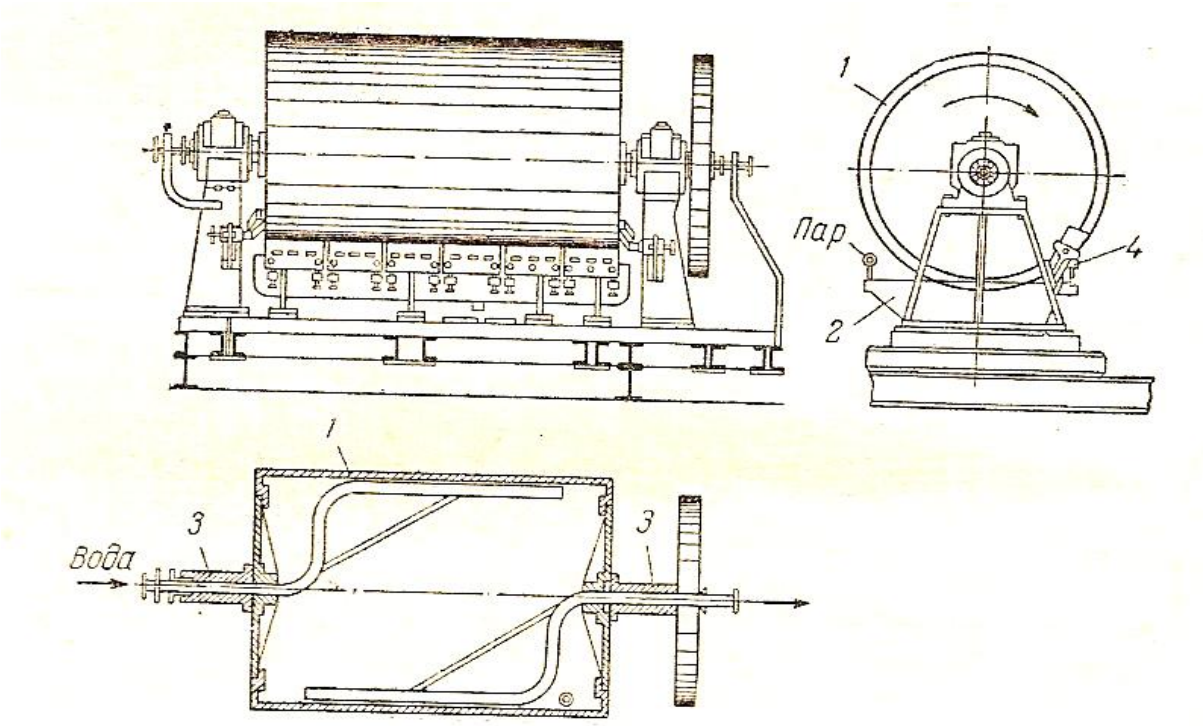

Figure 1.1 – The rotating crystallizer drum with internal cooling:
1 – drum; 2 – trough; 3 – knee; 4 – knife.

Supply of cooling agent (water) in a cooling casing occur through the left side of the hollow shaft and the knee 3, and the derivation - through the second koleno3 and the right side of the hollow shaft, on which the drum 1 is mounted. The cold water (temperature not exceeding $25C^0$) is supplied in the cooling casing of drum and the hot water (temperature 84-98 C0) - in cooling casing of stockline and troughs 2. Then the valve is opened nutritious trotyl melt from the container begins to flow into the trough of drum to the level of 20 cm valve is closed. With further work the feed valve is opened and closed automatically.

The advantages of this method are: relatively high performance (0, 58 t / h), the lack of direct contact between the coolant (water) with TNT (the water does not require additional treatment after cooling), the relative safety of the process (risk of ignition of TNT is minimal).

The problem of technogenic safety in Ukraine requires serious and immediate intervention by the government, new scientific developments for a more rational utilization of ammunition.

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