

# STUDY OF SAFETY CHARACTERISTICS AND PHYSICAL-CHEMICAL PROPERTIES OF CL-20 HIGH EXPLOSIVE

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The paper presents the results of studying one of the most powerful single-component high explosive (HE) CL-20.

Framed nitramine (2,4,6,8,10,12-hexanitro-2,4,6,8,10,12-hexaazaisowurtzitane) known as CL-20 has high density and reasonable stability due to the framed structure of molecule. Above all, it is one of the most powerful commercially available HEs. However, its military and civilian applications are strongly limited by their increased sensitivity to mechanical impact [1].

The paper presents the experimental results of studying safety characteristics and physical-chemical properties of the individual HE CL-20 i.e. thermal resistance, temperature of thermal explosion, sensitivity to impact and friction, etc. The obtained characteristics of HE CL-20 are compared with the characteristics of the most widely used individual HEs, i.e. TATB, RDX, HMX, and PETN.

## References

1. **Sharnin, G. P.** Chemistry of energetic compounds. Vol. 2. N-, O-nitro compounds, furoxan, furazans, azides, diazo compounds [Text] : study guide / G. P. Sharnin et al. // Ministry of science and higher education of the Russian Federation, Kazan National Research Technological University. – Kazan : KNRTU, 2011. – 376 p. (in Russian).
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