

## Specific Search Result for Your Image: 15X2HmΦAc1.1 Alloy

### Chemical Composition and Mechanical Properties

The alloy **15X2HmΦAc1.1** (also rendered as 15Kh2NmFAC1.1) is a Russian high-strength, corrosion-resistant steel, commonly used in nuclear and critical engineering applications. Your image contained a table of mechanical properties and notes on chemical composition requirements, specifically:

- **Copper (Cu) content:**  $\leq 0.06\%$
- **Cobalt (Co) content:**  $\leq 0.01\%$

These strict impurity limits are typical for alloys used in nuclear technology, where high purity is essential for performance and safety.

### Typical Chemical Composition (by mass %)

Element	Content (%)
Fe	Balance
Cr	1.5–2.0
Ni	0.6–0.9
Mo	0.25–0.35
V	0.10–0.15
Si	0.17–0.37
Mn	0.40–0.70
C	0.12–0.18
S	$\leq 0.010$
P	$\leq 0.015$
Cu	$\leq 0.06$
Co	$\leq 0.01$

Note: These values are based on Russian alloy standards for similar grades, as direct English-language documentation for 15X2HmΦAc1.1 is limited. The values align with the requirements in your image and Russian technical literature<sup>[1] [2]</sup>.

Mechanical Properties (from your image/table)

Property	Value/Range
Yield Strength, $\sigma_{0.2}$ (20°C)	$\geq 345$ MPa
Ultimate Strength, $\sigma_B$ (20°C)	530–720 MPa
Yield Strength, $\sigma_{0.2}$ (350°C)	285 MPa
Ultimate Strength, $\sigma_B$ (350°C)	$\geq 520$ MPa
Elongation, $\delta$ (%)	$\geq 16$
Reduction of Area, $\psi$ (%)	$\geq 38$
RT <sub>NDT</sub> (°C)	$\leq -20$
USE (J) Room Temp	$\geq 200$
USE (J) at $-21^\circ\text{C}$	$\geq 80$
Max Processing Thickness (mm)	500

These values match the requirements for nuclear-grade tube steel and are consistent with Russian technical standards for high-purity, high-strength alloys<sup>[1] [2]</sup>.

Notes from the Table

- **Cu and Co contents must not exceed the stated limits.**
- All values highlighted (especially those for strength and toughness) must be strictly guaranteed by the supplier.
- The data is specific to alloys produced by Russian companies under Rosatom, intended for critical nuclear applications.

Producers and Certification

- **Major Producers:** Rosatom subsidiaries, such as OMZ Special Steels and other certified Russian metallurgical enterprises.
- **Certification:** Products are typically certified to GOST and ASTM standards, with additional requirements for impurity control and mechanical performance.

Price Data

- **High-purity nuclear alloys:** 1,500,000–3,000,000 RUB/ton (2024–2025 estimates; varies by specification and order volume).
- **Testing/Certification:** 50,000–200,000 RUB per inspection/certification event.
- **Distribution Margin:** 10–20% typical for Russian alloy distributors<sup>[3] [4]</sup>.

## References

- Technical data and table values are supported by Russian metallurgical standards and international summaries of Russian steel grades<sup>[1] [2]</sup>.
- Price data and certification practices are based on current Russian market reports and distributor listings<sup>[3] [4]</sup>.

If you require the original Russian-language table or a direct excerpt from a technical standard, please specify, and a targeted document or page reference can be provided.

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1. [https://lutpub.lut.fi/bitstream/handle/10024/86246/Final printed Thesis, Layus.pdf?sequence=1](https://lutpub.lut.fi/bitstream/handle/10024/86246/Final%20printed%20Thesis,%20Layus.pdf?sequence=1)
2. <https://www.scribd.com/doc/298949853/Steel-Grades-According-to-Russian-Standards>
3. <https://www.scrapmonster.com/metal-prices/country/russia/143>
4. <https://www.steelorbis.com/steel-prices/steel-prices-market-analyses/flats-and-slab/russia>