

MECHANICAL AND CHEMICAL PROPERTIES OF STAINLESS STEEL

7.1. Vocabulary

Ex. 1. Match the words with their Russian Equivalents.

1. nuclear 	a. аустенитный
2. nitrogen	b. хирургический
3. prevent	c. пятно
4. parlance	d. состав
5. stain	e. азот
6. austenitic	f. определение
7. coil	g. змеевик
8. utensils	h. украшение
9. decoration	i. ядерный
10. cutlery 	j. предотвращать
11. martensitic	k. манера речи
12. definition	l. утварь
13. invent	m. столовые приборы
14. composition	n. ферритный
15. silicone 	o. кремний
16. surgical	p. изобретать
17. ferritic	q. мартеновский

Ex. 2. Complete the sentences with the given words.

silicone, parlance, Surgical, decoration, Martensitic, utensils, nitrogen, definition, stain, prevent, cutlery, composition, Nuclear, Ferritic, invent, coil, Austenitic

_____ (1) stainless steel is commonly used for welding applications.

The _____(2) was used in the welding machine to feed the wire smoothly.

Make sure to clean your _____(3) after welding to remove any residue.

It is important to understand the _____(4) of different welding techniques.

The _____(5) of the metal determines its strength in welding projects.

She added _____(6) to the welded piece to make it more visually appealing.

Some welding processes require the use of _____(7) for specific purposes.

_____(8) steel is known for its magnetic properties in welding applications.

Engineers _____(9) new welding technologies to improve efficiency.

_____(10) steel is often chosen for its hardness in welding projects.

During welding, _____(11) can be used as a shielding gas.

_____(12) welding involves specialized techniques due to safety concerns.

In welding _____(13), a "bead" refers to the deposited filler material.

Proper safety measures can help _____(14) accidents during welding.

Welding can sometimes leave a _____(15) on the surface that needs to be cleaned.

_____(16) instruments must undergo precise welding to ensure sterility.

Welding _____(17) such as clamps and hammers are essential for the process.

7.2. Reading

Ex. 1. Read the text.

MECHANICAL AND CHEMICAL PROPERTIES OF STAINLESS STEEL

Stainless steel is known for its exceptional mechanical and chemical properties, making it a reliable material in various industries. Mechanically, it boasts high tensile strength and durability, allowing it to withstand heavy loads and pressures without deforming. This strength is due to the addition of elements like chromium and nickel, which enhance its overall stability.

Chemically, stainless steel is known for its remarkable resistance to corrosion and staining. The presence of chromium sets up a passive layer on the surface, protecting it from rust and other environmental factors. This makes stainless steel an excellent choice for applications in harsh environments, such as marine or chemical industries.

Moreover, stainless steel maintains its properties across a wide temperature range, which means it won't easily become brittle in the cold or weaken in extreme heat. This versatility makes it a popular material in fields ranging from construction to medical instruments.

Its aesthetic qualities shouldn't be overlooked either; the shiny, polished look of stainless steel is not only strong but also visually appealing, often used in architecture and consumer products. Thus, the balanced combination of mechanical and chemical properties makes stainless steel a fascinating and useful material.

Ex. 2. Answer the questions.

1. What are the mechanical properties of stainless steel that make it a reliable material in various industries?
2. How does the addition of elements like chromium and nickel contribute to the strength of stainless steel?
3. Why is stainless steel known for its resistance to corrosion and staining?

4. In what types of environments is stainless steel particularly useful due to its corrosion resistance?
5. How does stainless steel maintain its properties across a wide temperature range?
6. Besides its mechanical and chemical properties, what other qualities make stainless steel a popular material in different fields?
7. How is the aesthetic quality of stainless steel described in the text?

7.3. Communication

Ex. 1. Make sentences using the following words:

1. durability/strength
2. kitchen/appliances/stainless
3. resists/corrosion/clean
4. mechanical/properties/vary
5. chemical/properties/resistant
6. construction/automotive/industries
7. high/percentage/chromium
8. advantages/using/manufacturing
9. test/mechanical/properties
10. popular/material/making