Уважаемые студенты гр. 42 ТЭПС, выполняйте задание в тетрадях или в электронном варианте и присылайте личным сообщение в контакте <https://vk.com/id20330566> .

Тема: Платина и платиновая группа металлов

Задания: тексты читаем/переводим устно. Упражнения к текстам выполняем письменно.

**VOCABULARY**

1. ***platinum*** – платина
2. ***precious*** – драгоценный
3. ***ductile*** – пластичный
4. ***a high melting point***– высокая точка плавления
5. ***resistance*** – сопротивление
6. ***corrosion*** – коррозия
7. ***chemical attack***– химическая атака
8. ***amount***– количество
9. ***iridium*** – иридий
10. ***alloy*** – сплав
11. ***indispensable*** – необходимый
12. ***electrode*** – электрод
13. ***а crucible*** – тигель
14. ***electrical contact*** – электрический контакт
15. ***electric arc*** – электрическая дуга
16. ***jewelry*** – ювелирный
17. ***dental*** – зубной
18. ***surgical pin*** – хирургическая игла
19. ***resistivity*** – сопротивляемость
20. ***a* *catalyst*** – катализатор
21. ***application*** – применение
22. ***notably*** – значительно
23. ***automotive catalytic converter*** – автоматический каталитический конвертер
24. ***petroleum refining***– очищение бензина
25. ***tellurium*** – теллур
26. ***selenium*** – селен
27. ***bismuth*** – висмут
28. ***quartz*** – кварц
29. ***infrared*** - инфракрасный

**PLATINUM***(Pt)*

Platinum is the best known and most widely used of the six metals of platinum group. It is very heavy, precious, silver-white metal.

Platinum is soft and ductile and has a high melting point and good resistance to corrosion and chemical attack. Small amounts of iridium are commonly added of pure platinum.

Platinum and its alloys are indispensable in the chemical laboratory for electrodes and for crucibles and dishes in which materials can be heated to high temperatures. Platinum is used for electrical contacts and sparking points because it resists both the high temperatures and chemical attack of electric arcs. The jewelry and dental alloys account for much of use. Platinum-iridium is used for surgical pins. The electrical resistivity of platinum is relatively high and depends upon the temperature as a catalyst. It has many applications, notably in automotive catalytic converters and in petroleum refining.

**EXERCISES**

**Ex. 1. Fill in the missing letters in the words given below:** Je\_elry, d\_ntal, su\_gical, res\_sti\_ity, cat\_lyst, ap\_lication, n\_tably, a\_tomotive.

**Ex. 2. Find in the text the English equivalents for the words and word-combinations given below:** Самый известный и широко используемый; очень тяжелый, драгоценный, серебристо-белый металл; обладает высокой точкой плавления; небольшое количество; чистая платина; слав платины незаменим в химических лабораториях; электрический контакт; сопротивляется химической атаке электрической дуги;

**Ex. 3. Complete the following sentence with the words from the text and translate them into Russian.**

1. Platinum is soft and \_\_\_\_ and has a high \_\_\_ point.
2. Platinum is used for electrical \_\_\_\_\_.
3. The electrical \_\_\_ of platinum is relatively high and depends \_\_\_\_ the temperature as a \_\_\_\_\_.
4. Platinum and its \_\_\_\_ are indispensable in the chemical \_\_\_\_\_\_.
5. Platinum is very heavy, \_\_\_\_\_\_, silver-white \_\_\_\_.

**Ex. 4. Make up the sentences from the following words and translate them into Russian.**

1. Pins / platinum / is / iridium / used / surgical / for.
2. Is / of / of / the / the / platinum / platinum / known / used / best / and / most / widely / metals / group.
3. Platinum / chemical / indispensable / alloys / laboratory / and / its / are / in / the.
4. Platinum / contacts / electrical / is / for / used.
5. The / and / for / of / jewelry / dental / alloys / account / much.

**PLATINUM GROUP METALS**

Gold (Au), silver (Ag), and the six metals of the platinum group — platinum (Pt), palladium (Pd), osmium (Os), iridium (Ir), rhodium (Rh), and ruthenium (Ru) belong to precious metals.

Gold, chemical element, a dense, lustrous, yellow precious metal has several qualities that have made it exceptionally valuable throughout history. It is attractive in colour and brightness, durable to the point of virtual indestructibility, highly malleable, and usually found in nature in a comparatively pure form. Gold is one of the heaviest of all metals. It is a good conductor of heat and electricity. It is also soft and the most malleable and ductile of metals.

Because gold is visually pleasing and workable and does not tarnish or corrode, it was one of the first metals to attract human attention. Owing to its unique qualities, gold has been the one material that is universally accepted in exchange for goods and services. In the form of coins or bullion, gold has occasionally played a major role as a high-denomination currency, although silver has generally been the standard medium of payments in the world's trading systems. Although gold's official role in the international monetary system had come to an end by the 1970s, the metal remains a highly regarded reserve asset. Gold is still accepted by all nations as a medium of international payment.

Gold occurs mostly in the native state, remaining chemically uncombined except with tellurium, selenium, and possibly bismuth.

Gold often occurs in association with copper and lead deposits, and, though the quantity present is often extremely small, it is readily recovered as a by-product in the refining of those base metals. Two types of deposits containing significant amounts of gold are known: hydrothermal veins, where it is associated with quartz and pyrite; and placer deposits.

The origin of enriched veins is not fully known, but it is believed that the gold was carried up from great depths with other minerals. Alluvial deposits of gold found in or along streams were the principal sources of the metal for ancient Egypt. Other deposits were found in Turkey, India, China, in Europe in Saxony and Austria. Russia became the world's leading producer of gold in 1823. In the late 20th century four countries - South Africa, Russia, the United States, and Australia - accounted for two-thirds of the gold pro­duced annually throughout the world.

Because pure gold is too soft to resist prolonged handling, it is usually alloyed with other metals to increase its hardness for use in jewelry, goldware, or coinage. Most gold used in jewelry is alloyed with silver, copper, and a little zinc to produce various shades of yellow gold or with nickel, copper, and zinc to produce white gold. The colour of these gold alloys goes from yellow to white as the proportion of silver in them increases; more than 70 per cent silver results in alloys that are white. Alloys of gold with silver or copper are used to make gold coins and goldware, and alloys with platinum or palladium are also used in jewelry. The content of gold alloys is expressed in 24ths, called karats; a 12-karat gold alloy is 50 percent gold, and 24-karat gold is pure.

Because of its high electrical conductivity (71 per cent that of copper) and inertness, the largest industrial use of gold is in the electric and electronics industry for plating contacts, terminals, printed circuits, and semiconductor system. Thin films of gold that reflect up to 98 per cent of incident infrared radiation have been employed on setellites to control temperature and on space-suit visors to afford protection. Used n-3383 in a similar way on the windows of large office buildings, gold reduces the air-conditioning requirement and adds to the beauty. Gold has also long been used for fillings and other repairs to teeth.

Several organic compounds of gold have industrial applications, sometimes they are used in certain organic solutions for decorating glass articles.

Platinum (Pt), chemical element, the best known and most widely used of the six metals of platinum group is a very heavy, precious, silver-white metal.

Platinum is soft and ductile and has a high melting point and good resistance to corrosion and chemical attack. For example, its surface remains bright after being brought to white heat in air, and though it readily dissolves in aqua regia, it is scarcely attacked by simple acids. Small amounts of iridium are commonly added to give a harder, stronger alloy that retains the advantages of pure platinum.

Platinum and its alloys are indispensable in the chemical laboratory for electrodes and for crucibles and dishes in which materials can be heated to high temperatures. Platinum is used for electrical contacts and sparking points because it resists both the high temperatures and chemical attack of electric arcs. The jewelry and dental alloys account for much of use; platinum-iridium is used for surgical pins. The elec­trical resistivity of platinum is relatively high and depends upon the temperature as a catalyst; platinum has many applications, notably in automative catalytic converters and in petroleum refining.

**EXERCISES**

**Ex. 1. Combine these words into sentences:**

1. Russia, producer, became, the, leading, of, gold, in, 1823.
2. gold, usually, alloyed, is, other, metals, with.
3. goes, colour, the, these, alloys, gold, of, yellow, from, white, to.
4. to make, coins, gold, alloys, silver, or, of, with, cop­per, used, are, and, goldware.
5. in, Egypt, were, alluvial, of, gold, found, deposits, ancient.

**Ex. 2. Make the following sentences interrogative and give short answers:**

1. Gold occurs mostly in the native state.
2. Gold can occur in association with copper and lead de­posits.
3. Other deposits were found in Turkey, China, India.
4. Pure gold is a very soft metal.
5. Gold can be used in jewelry.
6. 24-karat gold is pure.
7. Gold conducts electricity well.