



53 Iodine.
Physical properties
Application
of iodine.

2
8
18
18
7

I
Iodine
126.90447

Iodine

molecular form -

Iodine is a chemical element with symbol **I** and atomic number **53**. Simple substance iodine under normal conditions - crystal black and gray with a purple metallic luster, readily forms a purple pairs, which have a pungent odor.

2

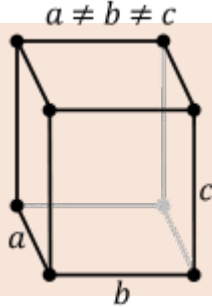
53

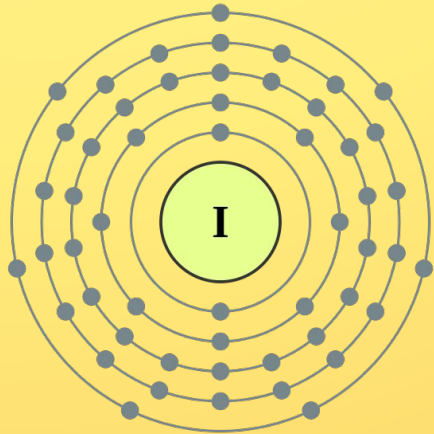
126,904

Йодит
Йод



Physical properties.

Symbol	I
Molar mass	126,9 g / mol.
The electronic configuration	[Kr] 4d ¹⁰ 5s ² 5p ⁵
Oxidation states	7, 5, 3, 1, 0, -1
Melting point	113,5 °C
Boiling point	184,35 °C
Crystal structure	orthorhombic 
Electronegativity	2,66



Isotopes

Of the 37 known isotopes of iodine, only one, **I-127**, is stable.

The longest-lived radioisotope, **I-129**, has a half-life of 15.7 million years.

The next-longest-lived radioisotope, **iodine-125**, has a half-life of 59 days.

Iodine-123 (half-life 13 hours) is the isotope of choice for nuclear medicine imaging of the thyroid gland.

Iodine-131 (half-life 8 days) is a beta-emitting isotope, which is a common nuclear fission product.





BERNARD COURTOIS

Iodine was discovered in 1811 Courtois in the ashes of seaweed, and from 1815 Gay-Lussac began to consider it as a chemical element.



- Very interesting version of the discovery of iodine - the culprit who was beloved cat Courtois: «I worked in the laboratory of the chemist was lying on the shoulder of a cat who, wanting to have fun, jump on the table and pushed to the floor standing nearby vessels, one of which was an alcoholic solution of seaweed ash and in the morning I found a cloud of blue-purple vapor. I was short of iodine»



Application of iodine.

Iodine is widely used in various fields.



A wooden periodic table element card for Iodine. The card is rectangular with a dark wood grain and a black border. It features the following information:

I	53
IODINE	
126.9	4.93
113.5	184



MEDICAL APPLICATIONS



5 - percent alcohol solution of iodine used to disinfect the skin around the wound.

In radiographic and tomographic studies are widely used iodine-containing contrast agents.

Potassium iodide has been used as an expectorant, although this use is increasingly uncommon. In medicine, potassium iodide is usually used to treat acute thyrotoxicosis. It is also used to block uptake of iodine-131 in the thyroid gland.

light Sources

Iodine is used in light sources:

- Halogen lamps - as a component of the gas filling the flask to precipitate the evaporated tungsten filament back at her.
- Metal halide arc lamps - as a gas discharge temperature range of metal halides are used.

Forensics.

In forensics iodine vapor used for the detection of fingerprints on paper surfaces, such as banknotes.



Manufacture of accumulators:

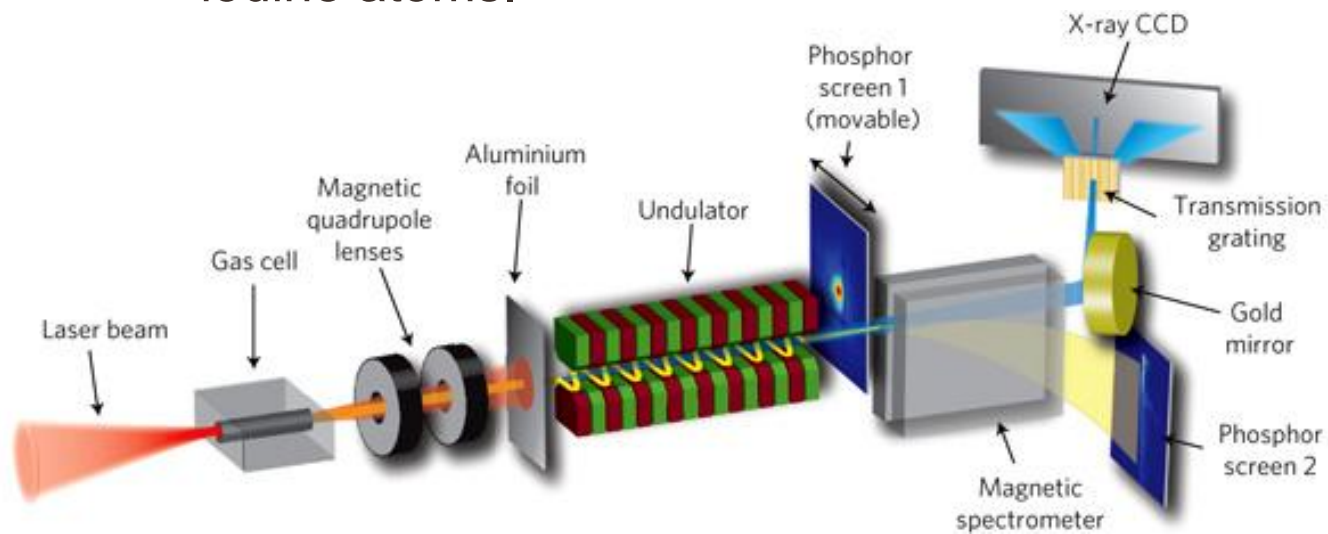


Iodine is used as a component of the positive electrode in lithium-iodine batteries for electric vehicles.



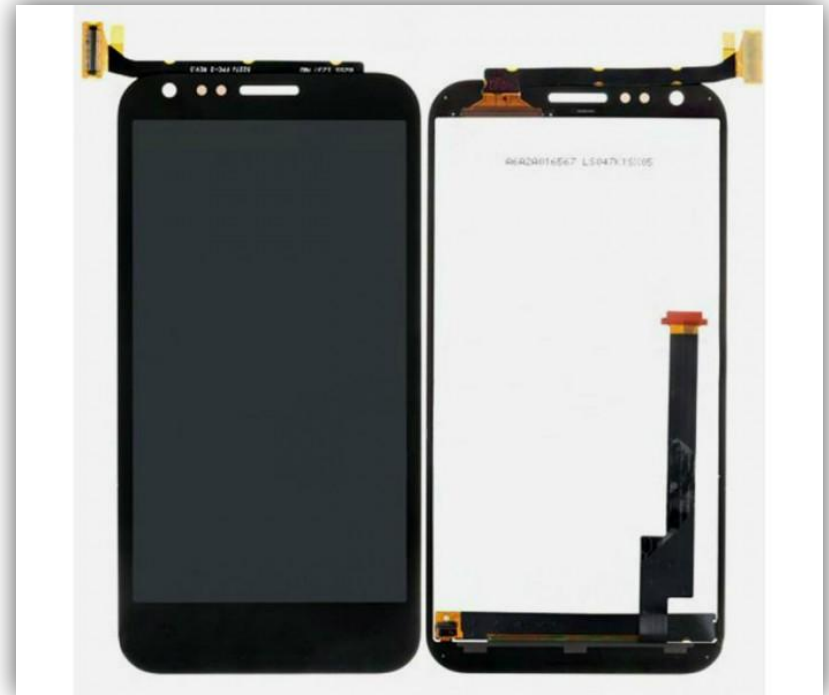
Laser thermonuclear fusion:

Some organic compounds of iodine used for heavy-duty gas lasers excited iodine atoms.



Radio-electronic industry:

In recent years there has been an increased demand for iodine by the manufacturers of liquid crystal displays.



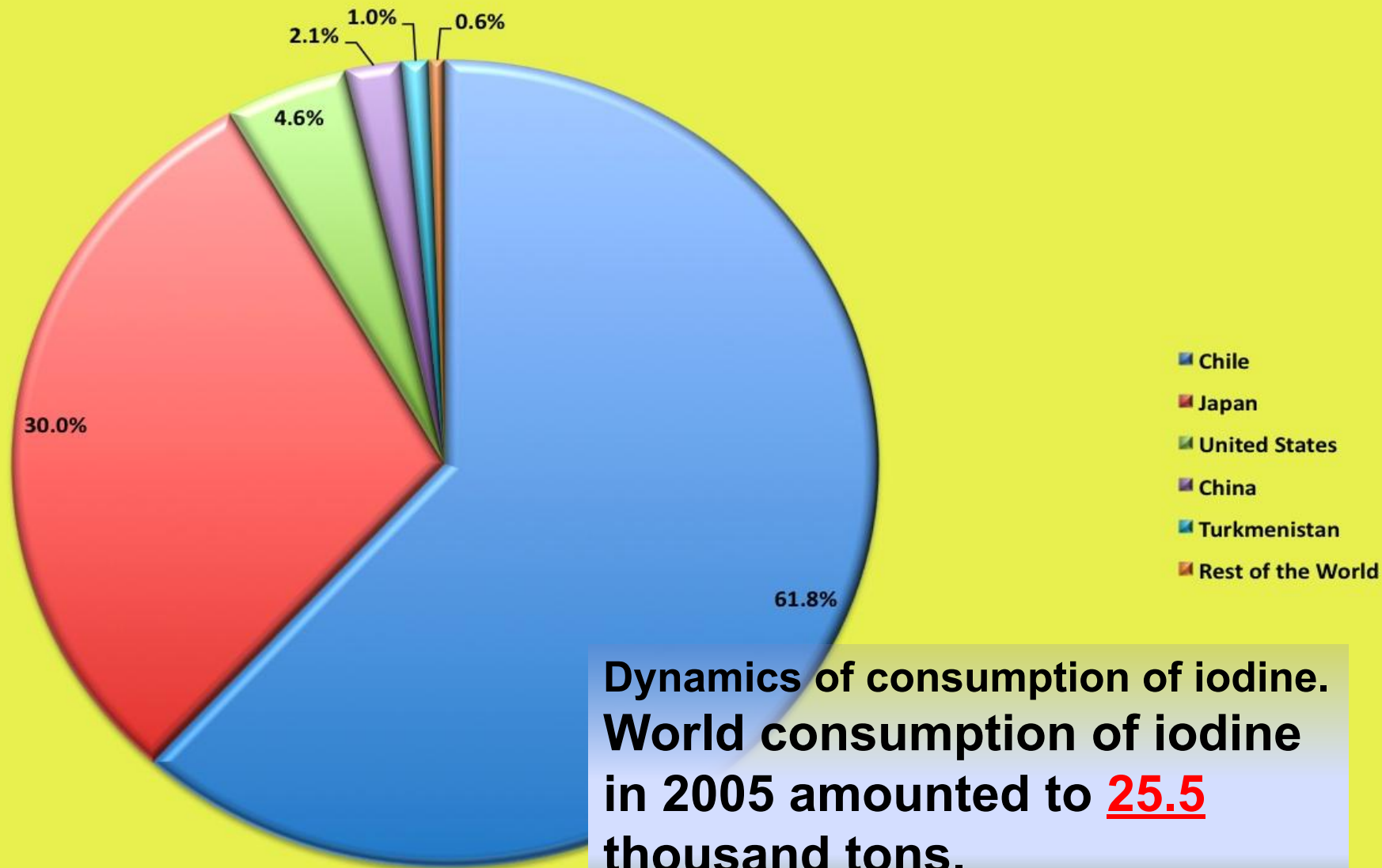
Qualitative reaction with starch.



THE WORLD PRODUCTION OF IODINE.

Global Distribution of Iodine Production, 2006

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Dynamics of consumption of iodine. World consumption of iodine in 2005 amounted to **25.5** thousand tons.

CROSSWORD PUZZLE WITH NUMBERS.

1	2	7
3		
1		7
		4
1	8	

What is the isotope of iodine has a half-life of 59 days? iodine - 127, 125 or 131?

1 2 5

The radioiodine iodine. Formed in beta decay. Iodine - 121, iodine - 125, iodine - 129, iodine - 131

In what year was called the Gay-Lussac chemical element iodine? 1815, 1835 or 1820?

1
8

iodine. 74, 60, 59?

How many electrons in iodine for 3 energy level? 18

1
5
2 5, 5

How many tons of iodine consumed in the world each year? 25.5, 20.1 or 30.9?

Thank you for attention!