

## **PRACTICE 8. DISTINGUISHING PHYSICAL AND CHEMICAL CHANGES.**

### **Introduction. Objectives:**

Remember that in physical changes each of the substances of a mixture preserves its identity. However, in chemical changes (reactions), the particles of the reactants lose their identity creating new ones. In this practice, we are going to recognise experimentally the main differences between a physical and a chemical change.

### **Materials:**

- ✓ Sulphur
- ✓ Iron filings
- ✓ Watch glass and porcelain crucible (or test tube)
- ✓ Magnet
- ✓ Heating device
- ✓ Stirring rod and spoon-spatula

### **Procedure:**

#### **EXPERIMENT 1**

- a) Take 3 g of iron filings and 3 g of sulphur in the watch glass and mix them. To do that, you use the electronic scale. Check if each substance preserves its colour after mixing them. Do they preserve their original colour? .....

Specify the original colours:

Sulphur:.....

Iron:.....

- b) Pass a magnet over the mixture and see what happens. Do you have the substances separated again? Explain it.

.....

- c) Was it a physical or a chemical change? Why?

.....

#### **EXPERIMENT 2**

- a) Mix them again in the porcelain crucible. Heat it over low heat for a while and see what happens. *Attention: It is important that the mixture doesn't heat too much not to melt the*

*Sulphur. It is advisable to use the stirring rod while heating to homogenise the mixture and promote the contact of Iron and Sulphur. Describe the change:*

.....

- b) Place the magnet close to the mixture now. What happens?

.....

- c) Was it a physical or a chemical change? Why?

.....

### **Analysing the results**

- a) Comment how the magnetic separation happened in Experiment 1. On which physic property is this separation method based?

.....

- b) The mixture of Sulphur and Iron is homogeneous or heterogeneous? Why?

.....

- c) Comment how the new substance formed in the Experiment 2 is (its colour).

.....

- d) Write down the chemical reaction (equation) and adjust it.

.....

- e) In the chemical change, there was an energy exchange. Was it absorbing (endothermic) or releasing energy (exothermic)?

.....