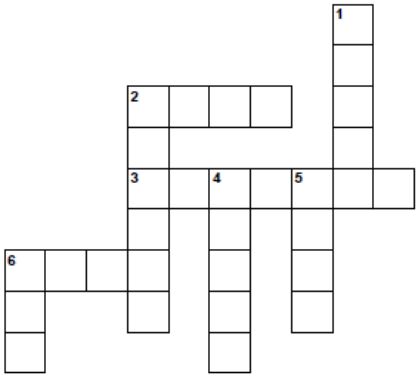
OXY-ACETYLINE GAS WELDING

6.1. Vocabulary

Ex. 1. *Solve the crossword puzzle.*



Across

[2] the movement of something in one direction
[3] a device for providing a flame for a cigarette, etc.
[6] a long plastic or rubber pipe, used to direct water onto fires, gardens, etc.

Down

[1] a device that opens and closes to control the flow of liquids or gases, or a similar structure in the heart and the veins that controls the flow of blood
[2] a substance that is used to fill small holes and cracks
[4] a device for measuring the amount or size of something
[5] a container that holds liquid or gas
[6] a strong, hard hat that covers and protects the head

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

hose, torch, gauge, spark lighter, tip, molten puddle, filler rod, cutting torch, gas flow, tank, valve, helmet

The welder carefully controlled the _____(1) of argon gas to produce a clean weld.

Adjusting the _____(2) is crucial in welding to ensure proper shielding of the molten puddle.

The welding instructor demonstrated how to create a stable _____(3) for effective welding.

The skilled welder selected the appropriate _____(4) for the specific metal being welded.

Make sure to close the _____(5) after completing the welding process to avoid gas leaks.

The _____(6) efficiently sliced through the metal with precision and skill.

The welder always wears a protective _____(7) to shield against sparks and debris.

He lit the welding torch using a _____(8) before beginning the welding process.

Remember to replace the worn-out _____(9) on the welding torch to maintain quality welds.

She adjusted the _____(10) flame intensity before starting the welding job.

The welder monitored the _____(11) readings closely to ensure proper gas pressure.

Connect the _____(12) securely to the welding machine before starting any welding tasks.

6.2. Reading

Ex. 1. *Read the text.*

Oxy-acetylene gas welding

Oxy-acetylene gas welding is a process of joining metals by application of heat. The heat is produced by the combustion of oxygen and acetylene in the welding torch. The flame temperature is about 5,500 degrees Fahrenheit. This high temperature melts the metal at the joint to be welded. When the metal cools, it forms a solid joint.

The oxy-acetylene flame has two parts: an inner cone and an outer envelope. The hottest part of the flame is the inner cone, which is about one-sixteenth of an inch long. The inner cone is surrounded by the slightly cooler outer envelope. The outer envelope is not hot enough to melt metal. It is used only for heating the metal before the weld and for protecting the weld from the air.

To produce the flame, the operator opens the acetylene valve on the welding torch. The operator then lights the acetylene with a spark lighter. Next, the operator opens the oxygen valve on the torch. The oxygen

mixes with the acetylene, and the flame appears. The operator adjusts the flame by turning the oxygen valve. A neutral flame is produced when there is just enough oxygen to completely burn the acetylene. The neutral flame is used for most welding operations.

Before starting the actual weld, the operator heats the metal around the joint with the outer envelope of the flame. This preheating expands the metal and helps to prevent cracking. During the weld, the operator moves the inner cone of the flame back and forth over the joint. The operator also moves the welding rod along the joint. The welding rod is made of the same material as the metal being welded. As the rod melts, it fills the joint and forms the weld.

Oxy-acetylene welding can be used to join almost any kind of metal. It is commonly used for welding steel, aluminum, and copper. Oxy-acetylene welding is also used for cutting and brazing metals.

Ex. 2. *Answer the questions.*

1. How is the heat for oxy-acetylene gas welding produced?

2. What is the temperature of the oxy-acetylene flame and how does it affect the metal being welded?

3. Describe the two parts of the oxy-acetylene flame and their functions.

4. Walk through the process of producing the oxy-acetylene flame from the welding torch.

5. Why is preheating the metal around the joint important before starting the actual weld?

6. What is the purpose of using a neutral flame in oxy-acetylene welding?

7. How does the operator create the weld using the inner cone of the flame and the welding rod?

6.3. Communication

Ex. 1. *Make sentences using the following words:*

1. explain/process/gas
2. welder/ignited/torch

3. safety/goggles/essential
4. pieces/properly/cleaned
5. flame/correct/temperature
6. metal/reaches/melting
7. filler/join/pieces
8. practice/mastering/techniques
9. experience/oxy-acetylene/welding
10. follow/safety/guidelines