

## Potash Alum Chemistry Questions with Solutions

**Q1.** What is the chemical formula of the potash alum?

- (a)  $K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24 H_2O$
- (b)  $KHSO_4 \cdot Al_2(SO_4)_3 \cdot 24 H_2O$
- (c)  $K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 21 H_2O$
- (d) None of the above

**Answer:** (a)  $K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24 H_2O$

**Q2.** What is the common name of the potash alum?

- (a) Alum
- (b) Fitkari
- (c) Both (a) and (b)
- (d) None of the above

**Answer:** (c) Both (a) and (b)

**Q3.** What is the colour of the potash alum?

- (a) White
- (b) Colourless
- (c) Off-white
- (d) None of the above

**Answer:** (b) Colourless

**Q4.** What is the shape of the crystal of the potash alum?

- (a) Dihedral
- (b) Octahedral
- (c) Tetrahedral
- (d) None of the above

**Answer:** (b) Octahedral

**Q5.** What is the IUPAC name of the potash alum?

- (a) Aluminium potassium sulphate dodecahydrate
- (b) Alumio potassium sulphate dodecahydrate
- (c) Potassium aluminium sulphite dodecahydrate
- (d) Potassium alumino sulphite dodecahydrate

**Answer:** (a) Aluminium potassium sulphate dodecahydrate

**Q6.** Why is the potash alum known as double salt?

**Answer:** Potash alum is known as double salt because it has two cations (potassium and aluminium). Its chemical formula is  $K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24 H_2O$ .

**Q7.** Which acid is used in the preparation of the potash alum?

**Answer:** Diluted sulfuric acid is used to prepare potash alum to inhibit the hydrolysis of aluminium sulphate. It helps in dissolving aluminium sulphate in warm water.

**Q8.** What is the potassium, aluminium and sulphate ratio in the potash alum?

**Answer:** The chemical formula of potash alum is  $K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24 H_2O$ .

The total number of potassium cations = 2.

The total number of aluminium cations = 2.

The total number of sulphate anions = 4.

The ratio of potassium, aluminium, and sulphate = 2:2:4.

The ratio of potassium, aluminium, and sulphate = 1:1:2

**Q9.** Write the reaction involved in the preparation of the potash alum.

**Answer:**  $Al_2(SO_4)_3 (aq) + K_2SO_4 (aq) \rightarrow K_2SO_4 \cdot Al_2(SO_4)_3 \cdot 24 H_2O (s)$

**Q10.** What are the properties of potash alum?

**Answer:** Potash alum is a double salt containing potassium and aluminium. The few properties of potash alum are mentioned below.

1. It is colourless.
2. It is soluble in water.
3. It is acidic and turns blue litmus red.
4. Its crystal is octahedral in shape.

**Q11.** What are the applications of potash alum?

**Answer:** Potash alum, commonly known as fitkari, has wide applications.

1. It is used in tanning leather.
2. It is used in the coagulation and flocculation of water during water treatment.
3. It is used to reduce teeth gum inflammation.
4. It is used in the textile industry as a drying agent.
5. It is used as an antiseptic agent.
6. It is used for dyeing wool.

**Q12.** What is the shape of a potash alum?

**Answer:** The crystal of potash alum is octahedral in shape.

**Q13.** Is alum edible?

**Answer:** Yes, we can consume potash alum. It is an active ingredient of baking powder.

**Q14.** What will happen if alum is added to sludgy water?

**Answer:** Alum will react with the bicarbonate alkalinities impurities in the sludgy water and form thick sediment.

**Q15.** Is alum an antiseptic?

**Answer:** Yes, alum is an antiseptic. It is used in cosmetic industries to manufacture deodorants.

## Practise Questions on Potash Alum

**Q1.** What happens when potash alum is heated?

**Answer:** When potash alum is heated moderately, it gets dissolved in its water of crystallisation, but if heating is continued for a more extended period, then the water of crystallisation evaporates, and potash alum salt froths and swells. If potash alum is heated very strongly, then an amorphous powder remains, which contains alumina and sulfate of potash as sulfuric acid also gets removed.

**Q2.** How is potash alum used to clean water?

**Answer:** Potash alum is typically used to remove the hardness of the water. It precipitates the insoluble colloidal materials in the water and kills or lowers the total bacterial content of the water.

**Q3.** Why is alum used after shaving?

**Answer:** Alum block is used after shaving to soothe the skin, prevent the spread of bacteria, and reduce bleeding associated with minor nicks and cuts. We can also use it to avoid some more annoying side effects of shaving, such as razor burns and ingrown hairs.

**Q4.** What happens when alum is rubbed on blood?

**Answer:** Alum acts as a coagulating agent. Thereby it thickens the blood and stops the bleeding.

**Q5.** Give any three characteristics of the potash alum.

**Answer:** Potash alum, commonly known as fitkari, has wide applications.

1. Potassium alum crystallises in regular octahedra with flattened corners
2. It is soluble in water.
3. It is slightly acidic and is astringent to the taste.