Task:

Lead pigments were used in water colour painting which turned black after prolonged to an air pollutant the original color was restored by using H2O2 which pollutant turned the painting black?

Answer:

The chemical formula for Lead pigments is $PbCO_3 \cdot Pb(OH)_2$.

There is always some H₂S in air. Because of reaction between H₂S and lead pigments the color turns blach.

The chemical equation for this reaction is

 $PbCO_3 \cdot Pb(OH)_2(s) + 2H_2S(g) = 2PbS(s) + 3H_2O(l) + CO_2(g)$

PbS is black.

To restore the original color H_2O_2 is used according to the reaction $PbS(s) + 4H_2O_2(aq) = PbSO_4(s) + 4H_2O(l)$

PbSO₄ is white.

The pollutant that turned the painting black is H_2S