2 KClO3 (s) 🡪 2 KCl (s) + 3 O2 (g)

 2.5 g x g

1. How many grams of O2 is produced if 2.50 g of KClO3 is completely decomposed by heating?

x g O2 = 2.5 ~~g KClO~~~~3~~ x (1 mol KClO3) x (3 ~~mol O~~~~2~~) x (32 g O2) = 0.98 g O2

 (122.5 ~~g KClO~~~~3~~) (2 mol KClO3) (1 ~~mol O~~~~2~~)

2. How many grams of KCl is produced if 2.50 g of KClO3 is decomposed?

2 KClO3 (s) 🡪 2 KCl (s) + 3 O2 (g)

 2.5 g x g

x g KCl = 2.5 ~~g KClO~~~~3~~ x (1 mol KClO3) x (2 ~~mol KClO~~~~3~~) x (74.5 g KCl) = 1.52 g KCl

 (122.5 ~~g KClO~~~~3~~) (2 mol KClO3) (1 ~~mol KCl~~)

1. How many moles of KClO3 is used to produce 10 moles of O2?

2 KClO3 (s) 🡪 2 KCl (s) + 3 O2 (g)

 x mol 10 mol

x mol KClO3 = 10 ~~mol O~~~~2~~ x (2 mol KClO3) = 6.7 mol KClO3

 (3 ~~mol O~~~~2~~)

1. How many moles of KCl is produced if 15 g of KClO3 is used?

2 KClO3 (s) 🡪 2 KCl (s) + 3 O2 (g)

 15 g x mol

x ml KCl = 15 ~~g KClO~~~~3~~ x (1 mol KClO3) x (2 mol KCl) = 0.12 mol KCl

 (122.5 ~~g KClO~~~~3~~) (2 mol KClO3)

1. How many liters of O2 is produced if 5 moles of KClO3 is used?

2 KClO3 (s) 🡪 2 KCl (s) + 3 O2 (g)

 5 mol x L

x L O2 = 5 ~~mol KClO~~~~3~~ x (3 mol O2) x (22.4 L O2) = 168 L O2

 (122.5 ~~g KClO~~~~3~~) (1 mol O2)

1. How many liters of O2 is produced if 10 g of KClO3 s used?

2 KClO3 (s) 🡪 2 KCl (s) + 3 O2 (g)

 10 g x L

x L O2 = 10 ~~g KClO~~~~3~~ x (1 mol KClO3) x (3 ~~mol O~~~~2~~) x (22.4 L O2) = 2.74 L O2

 (122.5 ~~g KClO~~~~3~~) (2 mol KClO3) (1 ~~mol O~~~~2~~)