

1 SO₂ + Cl₂ → SO₂Cl₂ + 67 KJ

7.5g → _____ KJ

7.5g SO ₂	1 mole SO ₂	67 KJ	=	7.85 KJ
	64g SO ₂	1 mole SO ₂		

$\Delta H_{rxn} = \sum \Delta H_{prod} - \sum \Delta H_{react}$
 $= (-364) - (-297 + \cancel{x}) = -67 \text{ KJ}$

evolved

Oct 25-7:38 AM

22) Fe: diameter = 4cm, density = $\frac{7.86 \text{ g}}{\text{cm}^3}$

90g SO₂ T_i

Initial Temp: T_i = 20°C, C = 0.45 J/g°C

Loss heat → HOTTER

C = 4.18 J/g°C

Heat gained = MCΔT = Heat lost

$$(263.31)(0.45)(T_f - 20) = (90)(4.18)(50 - T_f)$$

$$118.49(T_f - 20) = 376.2(50 - T_f)$$

$$118.49T_f - 2369.8 = 18810 - 376T_f$$

$$+376T_f \quad +2369.8 \quad +2369.8 \quad +376T_f$$

$$\frac{494.49 T_f}{494.49} = \frac{21179.8}{494.49}$$

T_f = 42.83°C

Oct 25-7:53 AM

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Hi Tim :)

Oct 25-8:05 AM

diameter = 4cm
density = $\frac{7.86g}{cm^3}$

Volume

~~Volume~~

~~(diameter)³~~

$V = \frac{4}{3}\pi r^3$

$= \frac{4}{3}(3.14)(2^3)$

$V = 33.5 cm^3$

Correct Volume (ml)

7.86 g	33.5 cm³
cm³	

= 263.31 g

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23) Heat Capacity = $\frac{J}{g^{\circ}C}$

Metal	Water
95g, 75°C	50g, 18°C
$\Delta T = 52^{\circ}C$	$\Delta T = 5^{\circ}C$
	4.184 J/g°C

$T_f = 23^{\circ}C$

$(95) c (52) = 50 (4.184) (5)$

$c = \frac{0.21 J}{g^{\circ}C}$ (heat capacity per gram)

0.21 J	95 g	=	20.11 J/g°C	19.95 J/g°C
$\frac{J}{g^{\circ}C}$				

Oct 25-8:16 AM

24) GOLD & WATER

GOLD	WATER
$d = \frac{19.3g}{cm^3}$	150g, 25°C Ti
$c = \frac{0.13J}{g^{\circ}C}$	27.5°C Tf
	$c = 4.184 J/g^{\circ}C$

$(0.13)(17.5) = (150)(4.184)(2.5)$

$m = 254.1g$

$\frac{cm^3}{19.3g}$	254.1g	=	13.17 cm ³ volume Gold.
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Volume = $l \times w \times h = (s_{side})^3$

$13.17 = (s_{side})^3$

$2.36cm = s_{side}$

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