

Empirical Analysis % of each element →
emp. formula

40.92% C, 4.58% H, 54.5% O by Mass.

① Assume 100g Sample. % → g
② Find Moles of each.

C	40.92g C	1 mole C	=	3.41 mole C	= 1
		12g C		3.41	

H	4.58g H	1 mole H	=	4.58 mole H	/ 3.41 = 1.34
		1g H			

O	54.5g O	1 mole O	=	3.41 mole O	/ 3.41 = 1
		16g O			

Subscripts
Moles of each.

$C_{3.41} H_{4.58} O_{3.41}$

$C_1 H_{1.34} O_1$

$C_3 H_4 O_3$ (*3)

③ divide by smallest #
④ If not all whole #'s →

0.5 * 2
0.33 or 0.66 * 3
0.25 or 0.75 * 4

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3.758g C, 0.316g H, 1.251g O

Emp. form

3.758g C	1 mole C	=	0.313 mole C	/ 0.078 = 4
	12g C			

$0.316 \text{ mole H} / 0.078 = 4$

$0.078 \text{ mole O} / 0.078 = 1$

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3/50 a+b p12

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