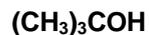


Alcohols (16–18)

The full oxidation product is the result of refluxing the alcohol with excess $K_2Cr_2O_7$ and acid. Before you answer the puzzles below fill in the table of alcohols using:



primary



ethanoic acid

Alcohol	Structural formula	Type of alcohol	Full oxidation product
ethanol	C_2H_5OH		
propan-1-ol		primary	propanoic acid
propan-2-ol	$CH_3CHOHCH_3$	secondary	propanone
2-methylpropan-2-ol		tertiary	2-methylpropan-2-ol

Gridlock 1

Each row, column and 2 x 2 box contains information about each of the four alcohols in the table. Use your problem solving skills and the answers in the table above to fill in the blank boxes.

alcohol		structural formula	
propan-1-ol			
		$(CH_3)_3COH$	
		ethanol	
	$CH_3CHOHCH_3$		
	structural formula	alcohol	

gridlocks – can you unlock the grid?

Gridlock 2

Each row, column and 2 x 2 box contains information about the four alcohols listed.

alcohol		structural formula	
	ethanol		$(\text{CH}_3)_3\text{COH}$
			$\text{C}_2\text{H}_5\text{OH}$
primary			
primary			propanone
type of alcohol		full oxidation product	

Gridlock 3

Each row, column and 2 x 2 box contains information about the four alcohols listed.

alcohol		structural formula	
propan-1-ol			$\text{C}_2\text{H}_5\text{OH}$
			2-methylpropan-2-ol
secondary			
type of alcohol		full oxidation product	

Alcohols (16–18) – answers

Alcohol	Structural formula	Type of alcohol	Full oxidation product
ethanol	C_2H_5OH	primary	ethanoic acid
propan-1-ol	$CH_3CH_2CH_2OH$	primary	propanoic acid
propan-2-ol	$CH_3CHOHCH_3$	secondary	propanone
2-methylpropan-2-ol	$(CH_3)_3COH$	tertiary	2-methylpropan-2-ol

Puzzle 1 – answers

alcohol		structural formula	
propan-1-ol	2-methylpropan-2-ol	$CH_3CHOHCH_3$	C_2H_5OH
propan-2-ol	ethanol	$(CH_3)_3COH$	$CH_3CH_2CH_2OH$
$(CH_3)_3COH$	$CH_3CH_2CH_2OH$	ethanol	propan-2-ol
C_2H_5OH	$CH_3CHOHCH_3$	propan-1-ol	2-methylpropan-2-ol
structural formula		alcohol	

gridlocks – can you unlock the grid?

Puzzle 2 – answers

alcohol		structural formula	
propan-2-ol	ethanol	$\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$	$(\text{CH}_3)_3\text{COH}$
2-methylpropan-2-ol	propan-1-ol	$\text{CH}_3\text{CHOHCH}_3$	$\text{C}_2\text{H}_5\text{OH}$
primary	secondary	2-methylpropan-2-ol	propanoic acid
primary	tertiary	ethanoic acid	propanone
type of alcohol		full oxidation product	

Puzzle 3 – answers

alcohol		structural formula	
propan-1-ol	propan-2-ol	$(\text{CH}_3)_3\text{COH}$	$\text{C}_2\text{H}_5\text{OH}$
2-methylpropan-2-ol	ethanol	$\text{CH}_3\text{CH}_2\text{CH}_2\text{OH}$	$\text{CH}_3\text{CHOHCH}_3$
primary	primary	propanone	2-methylpropan-2-ol
secondary	tertiary	ethanoic acid	propanoic acid
type of alcohol		full oxidation product	