

# basic organic functional group reference chart

NAME	POSITIONS OF INFRARED BANDS		
<b>Aliphatic</b>	<b>C-H</b>		
Methyl	2960		
Methylene	2930		
<b>Unsaturated</b>	<b>C=C</b>		
Alkenes	3050	1640	
Vinyl	910	1640	
Vinylidene	890	1640	
Cis	700	1640	
Trans	965	1670	
Alkynes	3200		<b>C≡C</b> 2200
<b>Aromatics</b>			<b>Ring</b>
Mono	750		700
Ortho	750		---
Meta	782		700
Para	817		---
<b>Oxygen Groups</b>		<b>C-O</b>	<b>O-H</b>
Ether		1100	
Alcohol		1100	3350
<b>Carbonyl Groups</b>			<b>C=O</b>
Aldehyde	2700		1730
Ketone			1700
Ester		1200	1740
Carboxylic Acid		3100	1720
<b>Nitrogen Groups</b>			<b>N-H</b>
Amide		1640	3200
Amine			3300
Nitrile			<b>C≡N</b> 2250

## FUNCTIONAL GROUP REPRESENTATION

<b>Methyl</b>				
$\text{CH}_3^-$	<b>Methylene</b>	<b>Alkene</b>	<b>Alkyne</b>	
<b>Vinyl</b>	$-\text{CH}_2-$	$\text{C}=\text{C}$	$\text{C}\equiv\text{C}$	
	<b>Vinylidene</b>	<b>Cis</b>	<b>Trans</b>	
	<b>Mono</b>	<b>Ortho</b>	<b>Meta</b>	<b>Para</b>
		<b>Aldehyde</b>	<b>Ketone</b>	<b>Ester</b>
		$\text{O}=\text{C}-\text{H}$	$\text{O}=\text{C}-\text{C}$	$\text{O}=\text{C}-\text{O}-\text{C}$
			<b>Ether</b>	<b>CarbAcid</b>
			$\text{C}-\text{O}-\text{C}$	$\text{O}=\text{C}-\text{OH}$
			<b>Alcohol</b>	<b>Nitrile</b>
			$\text{C}-\text{O}-\text{H}$	$\text{C}\equiv\text{N}$
			<b>Amide</b>	<b>Amine</b>
			$\text{O}=\text{C}-\text{N}$	$\text{C}-\text{N}$

## RELATIVE PEAK INTENSITIES

