

2015

Zyban

Shawna R. Meadows
Parkland College

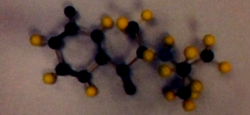
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ZYBAN

CLASSIFICATION
Antidepressant



**BUPROPION
HYDROCHLORIDE**

**SHAWNA MEADOWS
CHE 106-007
PARKLAND COLLEGE**

**AVAILABILITY
OF ZYBAN:**
Tab, Sustained-Release: 150mg

**WATER SOLUBILITY
OF ZYBAN₂**
312 mg/ml
Very water soluble

**RATIO OF HYDROPHILIC
TO HYDROPHOBIC RELATING
TO WATER SOLUBILITY₂**

The presence of one polar functional group is sufficient to dissolve a molecule containing five non-polar carbons, and the fact that I have 2 polar functional groups would make me behave in to be Very Soluble in water to be true.

IMAGE



HOW DOES THE BODY TAKE ZYBAN IN:

Bupropion Hydrochloride is given in tablet form and should be given with meals to decrease the chance of nausea and vomiting. Immediate release tablets should be given at approximately 6-hour intervals, or longer as directed. Ensure that the extended release tablets are swallowed whole and not chewed or crushed.

**WHAT DOES THE BODY DO WITH ZYBAN
AFTER IT IS ABSORBED:**

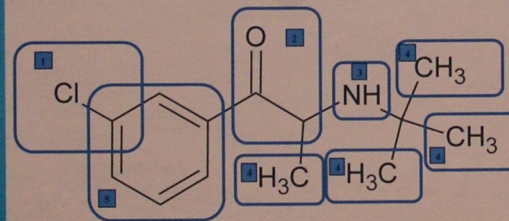
The neurochemical mechanism of bupropion is not fully understood. It selectively inhibits the neuronal reabsorption of dopamine. Its anti-depressive effect is related to the central nervous system stimulant effects.

HOW DOES THE BODY BREAK DOWN ZYBAN:

Bupropion Hydrochloride is metabolized in the liver by CYP2D6, which is an enzyme in the liver that is involved in the metabolism of neurotransmitters in the body.

HOW DOES THE BODY ELIMINATE ZYBAN:

Bupropion Hydrochloride is 80% eliminated from the body through the urine. It has a half-life of 8 - 24 hours.



FUNCTIONAL GROUPS:

- (1) CL - HALO
- (2) O= DOUBLE BOND KETONE
- (3) NH - AMINE
- (4) CH₃ - (4 OF THEM) ALKANE
- (5) AROMATIC

CL - HALO	HYDROPHILIC	NEITHER ACIDIC OR BASIC
O=DOUBLE BOND KETONE	HYDROPHILIC	NEITHER ACIDIC OR BASIC
NH - AMINE	HYDROPHILIC	BASIC GROUP
CH ₃ - (4) OF THEM ALKANE	HYDROPHOBIC	NEITHER ACIDIC OR BASIC
AROMATIC	HYDROPHOBIC	NEITHER ACIDIC OR BASIC

USES:

Bupropion hydrochloride is used to treat depression and seasonal affective disorder. Bupropion hydrochloride can also be used for smoking cessation.

UNLABELED USES:

Bupropion hydrochloride is used to treat neuropathic pain and ADHD.

DOSING & MOLAR MASS:

150 mg tablet

If a patient takes one 150 mg tablet twice a day, they will consume two tablets = 300 mg

DOSE TO MOLECULES:

150 mg = 15 grams 150 mg / 1000 = 0.15 grams
0.15 grams * 1 mole / 276 grams = 0.000543478 moles = 5.43478 x 10⁻⁴ moles

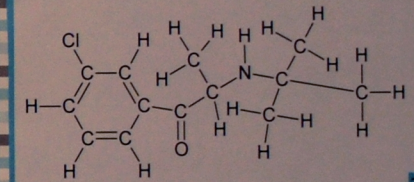
DOSE TO MOLECULES:

350.0g * 1 LABEL = 1 tablet
150 mg

**MOLAR MASS OF
BUPROPION HYDROCHLORIDE:**

13 atoms carbon = 13 * 12.01 = 156.13 g of carbon
18 moles hydrogen = 18 * 1.01 = 18.18 g of hydrogen
1 mole chlorine = 1 * 35.5 = 35.5 g of chlorine
1 mole nitrogen = 1 * 14.01 = 14.01 g of nitrogen
1 mole oxygen = 1 * 16.00 = 16.00 g of oxygen
1 mole hydrogen = 1 * 1.01 = 1.01 g of hydrogen
1 mole chlorine = 1 * 35.5 = 35.5 g of chlorine
156.13 g of C + 18.18 g of H + 35.5 g of Cl + 14.01 g of N + 16.00 g of O + 1.01 g of H
= 276.00 g
(Molar mass = 276.00 g)

LITERATURE VALUE FOR MOLAR MASS
276.20g



TRADE NAMES:

Wellbutrin, Wellbutrin SR, Wellbutrin XL, Zyban

CHEMICAL NAMES:

1-(3-Chlorophenyl)-2-[(1,1-dimethylethyl)amino]-1-propanone; (±)-2-(*tert*-butylamino)-3-chloropropiophenone; *m*-chloro- α -(*tert*-butylamino)propiophenone; amfebutamone.

CHEMICAL FORMULA:

C₁₇H₁₉ClNO.HCl

BIOWIS (2010)

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2. (2013). Bupropion Hydrochloride. In *OTWAL, M. J., Heckman, H. E., Dobbelaar, P.H., & Homan, K. J. (Eds.) The Merck Index: An Encyclopedia of Chemical, Drugs, and Biologicals* (p. 265). Cambridge, UK: Royal Society of Chemistry.
3. Physician's Desk Reference. (2015). Drug Summary Zyban (Bupropion Hydrochloride). PDF file Retrieved from <http://www.pdf.net/drug-summary/zyban/wglab46d=266>
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