

LABORATORY SERVICES BUREAU

Document: Controlled Substances Analysis Manual

Policy Number:
1549

Revision:
7

Subject: CS-SOP-48 Propoxyphene

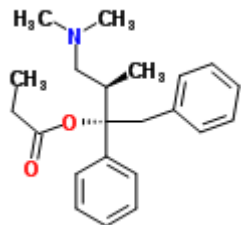
Approved:
Bell, Erica

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1. PROPOXYPHENE

A. Structure, Empirical Formula, Molecular Weight



Propoxyphene
 $C_{22}H_{29}NO_2$
MW 339.4

B. Synonyms:

- (1) dextropropoxyphene: α -d-4-dimethylamino-3-methyl-1,2-diphenyl-2-butanol propionate, d-propoxyphene, (2S, 3R)-(+)-4-(Dimethylamino)-3-methyl-1,2-diphenyl-2-butanol propionate
- (2) levopropoxyphene: l-propoxyphene

C. Trade Names: Darvon®, Darvacet®, Wygesic®, etc.

D. Drug Action: Narcotic analgesic

E. Common pharmaceutical/street forms: 65 mg tablets of the hydrochloride salt, 50 and 100 mg tablets of the napsylate salt. Both salt forms may be combined with acetaminophen.

F. Solubility: Water, chloroform, methanol, insoluble in diethyl ether

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G. Extraction:

- (1) Acid/base extraction for samples combined with acetaminophen
 - (a) Determine amount of sample required for extraction based on concentration of propoxyphene in the sample.
 - (b) Grind tablet and place in a test tube.
 - (c) Add 0.2 N sulfuric acid.
 - (d) Extract with chloroform two times, discarding the chloroform, (bottom layer). If emulsions occur, the sample may be centrifuged.
 - (e) Basify the aqueous solution with 10% sodium hydroxide. Verify that the pH is basic.
 - (f) Extract with chloroform. If emulsions occur, the sample may be centrifuged.
 - (g) Remove the chloroform (bottom layer) and place into a clean well.
 - (h) Repeat steps f and g, combining the chloroform extracts.
 - (i) Evaporate the chloroform and reconstitute with C15 methanol.
- (2) Dry extraction for samples not combined with acetaminophen
 - (a) Dissolve in C15 methanol.
 - (b) Filter to remove any insoluble material if necessary.

H. Chemical indicator tests:

- (1) Marquis: Purple-black to green
- (2) Liebermann's: Brown
- (3) Froehde's: Pink-purple
- (4) Mecke's: Purple-black
- (5) Cobalt thiocyanate/chloroform: Blue with extract

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I. TLC:

(1) Mobile Phase:

(a) System 1: Methanol:conc. ammonium hydroxide (100:1.5)

(b) System 2: Chloroform:methanol (90:10)

(2) Locator: Acidified iodoplatinate, Dragendorff reagent, Marquis reagent

J. GC/MS: Analyze using "Drugs1" program.

K. Comments: Only the dextro or d isomer of propoxyphene is a controlled substance. The isomer of the sample must therefore be determined.

L. Report as: Propoxyphene identified; isomer not determined.

M. References:

(1) Analytical Profiles of Narcotic Analgesics, CND Analytical, Inc., Auburn, AL, 1991.

(2) Procedure for mixed crystal test, unpublished communication from S. Kanika Douch, Houston Police Department Crime Laboratory, Houston, TX.