Health Canada Santé Canada

STATUS DECISION OF CONTROLLED AND NON-CONTROLLED SUBSTANCE(S)

Substance: I - Toremifene Citrate
II - 4-Hydroxy Toremifene

Based on the current information available to the Office of Controlled Substances, it appears that the above substance is:

Controlled ☐
Not Controlled ✓

under the schedules of the *Controlled Drugs and Substances Act* (CDSA) for the following reason(s):

- The substances are used for the treatment of breast cancer and are not structurally similar to any of the substances included in the schedules to the CDSA.

Prepared by: _____ Date: Sept 16, 2011
Evelyn C Soo

Verified by: _____ Date: _____
Mark Kozlowski

Approved by: _____ Date: _____
DIRECTOR, OFFICE OF CONTROLLED SUBSTANCES

This status was requested by: "third party information removed as per agreement with applicant"

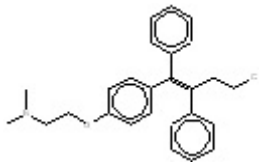
Drug Status Report

Drug: I - Toremifene
II - 4-Hydroxytoremifene

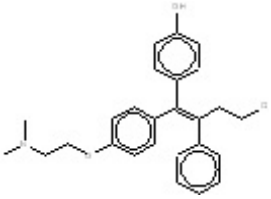
Drug Name Status: I - Toremifene is the proper (INN) name.
II - 4-Hydroxytoremifene is the common name.

Chemical Name:
I - 2-(4-((1Z)-4-chloro-1,2-diphenyl-1-butenyl)phenoxy-N,N-dimethylethanamine
II - (Z)-4-(4-Chloro-1-4-(2-(dimethylamino)ethoxy)phenyl)-2-phenyl-1-butenyl)phenol

Chemical structure:



I



II

Molecular Formula: I - $C_{26}H_{28}ClNO$; II - $C_{26}H_{28}ClNO_2$

Pharmacological class / Application: Antineoplastic agent

CAS-RN: I - 89778-26-7 (Citrate: 89778-27-8); **II** -110503-62-3

International status:

US: Toremifene and 4-hydroxytoremifene are not listed in the Controlled Substances Act and are not mentioned anywhere on the DEA website.

United Nations: The substances are not listed on the Yellow List - List of Narcotic Drugs under International Control nor the Green List - List of Psychotropic Substances under International Control.

Canadian Status: Toremifene and 4-hydroxytoremifene are not listed in the Schedules to the CDSA. The substances are analogues of tamoxifen and have been shown useful for the

treatment of breast cancer[1,2]. Toremifene and 4-hydroxytoremifene are not structurally similar to any of the substances included in the CDSA.

Recommendation: Toremifene and 4-hydroxytoremifene are not included in the schedules to the CDSA and are not controlled substances.

Date: Sept 16th, 2011

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[1]Buzdar, A and Hortobagyi, GN (1998) Tamoxifen and toremifene in breast cancer: comparison of safety and efficacy, Am Soc Clin Oncol. **16**:348-353.

[2]Styless, JA et a; (1997) Clastogenic and aneugenic effects of tamoxifen and some of its analogues in hepatocytes from dosed rats in human lymphoblastoid cells transfected with human P450 cDNAs (MCL-5 cells), Carcinogenesis, **18**:303-313.