Health Canada Santé Canada

CHYMOTRYPSIN

This monograph is intended to serve as a guide to industry for the preparation of Product Licence Applications (PLAs) and labels for natural health product market authorization. It is not intended to be a comprehensive review of the medicinal ingredient.

Notes

- Text in parentheses is additional optional information which can be included on the PLA and product label at the applicant's discretion.
- The solidus (/) indicates that the terms and/or the statements are synonymous. Either term or statement may be selected by the applicant.

Date July 12, 2012

Proper name(s)

Chymotrypsin (IUBMB 1972)

Common name(s)

Chymotrypsin (IUBMB 1972)

Source material(s)

- Bovine (*Bos taurus* L. (Bovidae)) pancreas (FCC 8; USP 35; Bisby et al. 2011)
- Porcine (*Sus scrofa* (Suidae)) pancreas (FCC 8; Bisby et al. 2011)

Route(s) of administration

Oral

Dosage form(s)

- The acceptable pharmaceutical dosage forms include, but are not limited to capsules, chewables (e.g. gummies, tablets), liquids, powders, strips or tablets.
- This monograph is not intended to include foods or food-like dosage forms such as bars, chewing gums or beverages.

Use(s) or Purpose(s)

Statement(s) to the effect of:

Digestive enzyme

Dose(s)

Subpopulation(s)

Adults (≥ 19 years)

Quantity(ies)

Dose information must include the quantities of both the enzyme preparation and its enzymatic activity:

- Enzyme preparation containing up to 480 mg per day; not to exceed 160 mg per dose (Dörr and Herrmann 2007; Martin et al. 2002; Dale et al. 2001); and
- Enzymatic activity providing up to 4.8 x 10^5 USP chymotrypsin units per day; not to exceed 1.6 x 10^5 USP chymotrypsin units per dose (USP 35; Dörr and Herrmann 2007; Martin et al. 2002; Dale et al. 2001).

Note
One USP Chymotrypsin Unit is defined as the activity causing a change in absorbance at the rate of 0.0075/min under the conditions of the assay (FCC 8).

Directions for use

All products:
Take with food/meal.

Enteric-coated products:
Swallow whole/do not crush or chew (CPS 2008).

Duration of use

For prolonged use, consult a health care practitioner.

Risk information

Statement(s) to the effect of:

Caution(s) and warning(s)

- If you are pregnant or breastfeeding, consult a health care practitioner prior to use.

- If you have gastrointestinal lesions/ulcers, are taking anticoagulant agents, anti-inflammatory agents or other enzyme products or are having surgery, consult a health care practitioner prior to use.

Contraindication(s)

No statement required.

Known adverse reaction(s)

Hypersensitivity/allergy has been known to occur, in which case discontinue use (Martindale 2011).

Non-medicinal ingredients

Must be chosen from the current NHPD *Natural Health Products Ingredients Database* and must meet the limitations outlined in the database.

Storage conditions

Statement(s) to the effect of:

Store in a tightly closed, light-resistant container in a cool, dry place (Ph.Eur. 2012; USP 35).

Specifications

- The finished product must comply with the minimum specifications outlined in the current NHPD *Compendium of Monographs*.
- Details of the manufacturing of the enzyme at the raw material stage should include fermentation medium and the isolation process of the medicinal ingredient.
- The specifications must include testing for enzymatic activity of the medicinal ingredient at appropriate stages of formulation and manufacturing using the assay outlined in the current Food Chemicals Codex (FCC):
  CHYMOTRYPSIN ACTIVITY
- The medicinal ingredient may comply with the specifications outlined in the current United States Pharmacopeia (USP):
  Chymotrypsin.
- Where published methods are not suitable for use, manufacturers will use due diligence to ensure that the enzymes remain active to the end of the shelf life indicated on the product label.

References cited

Bisby F, Roskov Y, Culham A, Orrell T, Nicolson D, Paglinawan L. Bailly N, Appeltans W, Kirk P, Bourgoin T, Baillargeon G, Ouvrard D, editors. Species 2000 & ITIS Catalogue of Life,

15th March 2012 [Internet]. Reading (GB): Species 2000. [Source database: ITIS Global Apr 11; Accessed 2012 March 28]. Available from: http://www.catalogueoflife.org

CPS 2008: Compendium of Pharmaceuticals and Specialties: The Canadian Drug Reference for Health Professionals. Ottawa (ON): Canadian Pharmacists Association; 2008.

Dale PS, Tamhankar CP, George D, Daftary GV. Co-medication with hydrolytic enzymes in radiation therapy of uterine cervix: evidence of the reduction of acute side effects. Cancer Chemotherapy and Pharmacology 2001;47(Suppl):S29-S34.

Dörr W, Herrmann T. Efficacy of Wobe-Mugos® E for reduction of oral mucositis after radiotherapy: results of a prospective, randomized, placebo-controlled, triple-blind phase III multicenter study. Strahlentherapie und Onkologie 2007;183:121-127.

FCC 8: Food Chemicals Codex. Eighth edition. Rockville (MD): The United States Pharmacopeial Convention; 2012.

IUBMB 1972: IUBMB Enzyme Nomenclature [Internet]. London (GB): Queen Mary, University of London [chymotrypsin: CAS 9004-07-3, EC 3.4.21.1 created 1961 as EC 3.4.4.5 and EC 3.4.4.6, transferred 1972 to EC 3.4.21.1; Accessed 2012 March 28]. Available from: http://www.chem.qmul.ac.uk/iubmb/enzyme/EC3/4/21/1.html

Martin T, Uhder K, Kurek R, Roeddiger S, Schneider L, Vogt HG, Heyd R, Zamboglou N. Does prophylactic treatment with proteolytic enzymes reduce acute toxicity of adjuvant pelvic irradiation? Results of a double-blind randomized trial. Radiotherapy and Oncology 2002;65:17-22.

Martindale 2011: Sweetman SC, editor. Martindale: The Complete Drug Reference [Internet]. London (GB): Pharmaceutical Press. [Chymotrypsin: syn: α-Chymotrypsin, EC 3.4.21.1, CAS 9004-07-3, latest modification 05-Dec-2011; Accessed 2012 March 28]. Available from: http://www.medicinescomplete.com

Ph.Eur. 2012: European Pharmacopoeia. 7th edition. Strasbourg (FR): Directorate for the Quality of Medicines and HealthCare of the Council of Europe (EDQM), 2012.

USP 35: United States Pharmacopeia and the National Formulary (USP 35 - NF 30). Rockville (MD): The United States Pharmacopeial Convention; 2012.

References reviewed

Cichoke AJ. Pancreatic Enzymes. In: Pizzorno JE, Murray MT, editors. Textbook of Natural Medicine, Third edition, volume 1. St. Louis (MI): Churchill Livingstone Elsevier; 2006. p. 1131-1146.