Appendix 2: New Zealand Product Quality Standards Monograph

1. A product is required to meet the specifications outlined in the New Zealand Product Quality Standards Monograph (the Monograph) for:
   (a) Active ingredients
   (b) Terpenes
   (c) Related substances
   (d) Foreign material
   (e) Microbiological contamination
   (f) Mycotoxins
   (g) Pesticides
   (h) Heavy metals
   (i) Residual solvents
   (j) Loss on drying
   (k) Total ash
2. The Monograph defines the applicable tests, methods, specifications and limits. These requirements are in addition to specifications outlining labelling and specific dose form requirements as set out in the following documents:
3. Additional accompanying specifications:
   (a) Labelled according to the appropriate regulations of the Medicines Act 1984, Misuse of Drugs Act 1975 and GRTPNZ.[1]
   (b) Dose form requirements, as applicable, specified in:
      (i) European Pharmacopoeia
      (ii) United States Pharmacopoeia
      (iii) British Pharmacopoeia
   (c) Stability and shelf life according to the appropriate ICH guideline Q1A to Q1E

[1] GRTPNZ is the Ministry of Health Guideline on the Regulation of Therapeutic Products in New Zealand.

Test	Methods	Specifications
Appearance (*plant material*)[2]	• Physical inspection[3] • Macroscopic examination	Complies with physical and macroscopic examination. • Cannabis flos (depending upon variety): dark green to light green and tan coloured flowering heads of Cannabis sativa. • Granulated cannabis flos: material is approximately 5 mm in diameter, or as specified.
Identification (*plant material*)	The test methods include: • microscopic examination • chromatographic procedures • and, DNA profiling (if applicable)[4]	Complies with the methods, including spectrographic and chromatographic techniques. Microscopic examination: Mainly gland hairs visible
Active ingredients (anhydrous base)[5]	The test methods include: • Gas chromatography (Ph Eur. 2.2.28) or liquid chromatography (Ph Eur. 2.2.29)	• Herbal form (starting material): average content of each active ingredient, together with any corresponding acid, in a representative sample of the product must be not less than 80.0 % and not more than 120.0 % of the stated content of that active ingredient. • Herbal form (API & finished product): average content of each active ingredient, together with any corresponding acid, in a representative sample of the product must be not less than 80.0 % and not more than 120.0 % of the stated content of that active ingredient. • Other dose form (finished product): average content of each active ingredient, together with any corresponding acid, in a representative sample of the product must be not less than 90.0 % and not

[2] Plant material: as cannabis flower (flos).

[3] The cannabis inflorescence: The identification of the cannabis influence is well defined within the American Herbal Pharmacopoeia: Cannabis Inflorescence and Leaf (2013). The full and proper monograph should be consulted, this excerpt is an example only and not be relied upon as a definitive text. The European Pharmacopeia is expected to publish a cannabis monograph in 2019, at the time of publication this should be considered the definitive text.

[4] Not a required test. A DNA profiling identification method could be required for identification of a specific clone, which is then continually propagated.

[5] Acidic cannabinoids: CBDA, CBGA, CBNA, THCA, CBCA. Neutral cannabinoids: CBG, CBD, CBN, d9THC, d8THC, CBC. (eg, CBDA is the corresponding acid to CBD). Terpenes: included if intended as an active ingredient.

Test	Methods	Specifications	
		more than 110.0 % of the stated content of that active ingredient.[6]	
Related substances (impurities)	• Gas chromatography (Ph Eur. 2.2.28) or liquid chromatography (Ph Eur. 2.2.29)	Impurities in New Drug Products (ICH Q3B)	
Foreign matter	• Ph. Eur. 2.8.2: Foreign matter (plant material only) • Ph. Eur. 2.8.20: Herbal drugs: sampling and sample preparation.	Contains NMT 2% foreign organs[7] or foreign elements[8] (*plant material*). Contains NMT 0.1% foreign organs or foreign elements (*API and finished product*).	
Microbiological contamination	The applicable tests from: • Ph. Eur. 2.6.12: Microbial examination of non-sterile products: Microbial enumeration tests • Ph. Eur. 2.6.13: Microbial examination of non-sterile products: Tests for specified micro-organisms • Ph. Eur. 2.6.31: Microbial examination of herbal medicinal products for oral use and extracts used in their preparation	• Ph. Eur. 5.1.4: Microbiological quality of non-sterile pharmaceutical preparations and substances for pharmaceutical use. The TAMC[9] and the TYMC[10] are no more than the limits specified in Ph. Eur. 5.1.4, as applicable to the specific dose form, eg, inhalation, tablet etc. • No more than the limits specified in Ph. Eur. 5.1.8: Microbiological quality of herbal products for oral use and extracts used in their preparation (where Ph. Eur. 2.6.31 applies).	
Mycotoxins	Ph. Eur. 2.8.18: Aflatoxins Ph. Eur. 2.8.22: Ochratoxin A	Aflatoxin B1 Aflatoxins B1, B2, G1, G2. Ochratoxin A	NMT 2 µg/kg NMT 4 µg/kg for the sum NMT 20 µg/kg
Pesticides	Ph. Eur. 2.8.13: Pesticides Sampling done according to Ph. Eur. 2.8.20: Herbal drugs: sampling and sample preparation.	No more than the limits specified in Ph. Eur. 2.8.13: Pesticide residues.	
Heavy Metals	Ph. Eur. 2.4.27: Heavy metals	Impurities in New Drug Products (ICH Q3B)	
Residual solvents	Ph. Eur. 5.4: Residual solvents.	Impurities: Guideline for Residual Solvents (ICH Q3C)	

[6] Generally, with other medicines, on release the active content is 90-110%.

[7] Foreign organs: matter coming from the source plant but not defined as the herbal drug (eg, cannabis plant stems).

[8] Foreign elements: matter not coming from the source plants and of either vegetable or mineral origin (eg, insects).

[9] TAMC: Total Aerobic microbial count

[10] TYMC: Total combined yeasts/moulds count

Test	Methods	Specifications
Loss on drying (*plant material*)	Ph. Eur. 2.2.32: Loss on drying	NMT 10 %
Total ash (*plant material*)	Ph. Eur. 2.4.16: Total ash	NMT 20%