INTERNATIONAL STANDARD

ISO 18668-1

First edition
2016-04-01

Traditional Chinese medicine — Coding system for Chinese medicines —

Part 1: Coding rules for Chinese medicines

Médecine traditionnelle chinoise — Système de codage des médecines chinoises —

Partie 1: Règles de codage des médecines chinoises

Reference number
ISO 18668-1:2016(E)

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword

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The committee responsible for this document is ISO/TC 249, *Traditional Chinese medicine.*

ISO 18668 consists of the following parts, under the general title *Traditional Chinese medicine — Coding system for Chinese medicines*:

— *Part 1: Coding rules for Chinese medicines*

— *Part 2: Codes for decoction pieces*

— *Part 3: Codes for Chinese materia medica*

— *Part 4: Codes for granule forms of individual medicinals for prescriptions*

Introduction

As the pharmaceutical materials extracted from natural and botanical products have become increasingly attractive, significant progress has been achieved in identifying new sources of natural products for traditional and alternative medicine. In particular, Chinese traditional medicine has been the focus of tremendous research, development and applications worldwide. Accordingly, Chinese medicinal materials are increasingly being used in countries around the world. Currently, there are more than 70 countries that have established administrative systems to regulate Chinese Medicine. At present, the annual sale of Chinese medicines has reached more than USD 16 billion and is increasing at a rate of 10 % to 20 % per year with great future potential. At the same time, concerns of harm to the body associated with the long-term use of synthetic drugs have been recognized. Therefore, many countries are developing vigorous controls and regulations on using antibiotics and other synthetic drugs, while recognizing the importance of traditional and alternative medicines. Thus, this brings more opportunities for the development of the market of Chinese medicines.

Today, bar codes are widely used for managing almost all ordinary products that are put up for sale, for example, an eraser or a pencil has its individually identifiable bar code. Yet so far, a bar coding system for products used in Chinese medicine has not been given sufficient attention, making it difficult to categorize the individual items for international trade and research development. This brings challenges and concerns in government supervision and proper use by patients. As products for medicinal use, Chinese medicines could have bar codes that can be integrated into the current bar code system that is used for other commercial products. In this way, bar codes can be used to track sources and monitor the quality of the products. Therefore, there is an urgent need to develop a bar code system for Chinese medicine products that will enable to identify each specific Chinese medicine product.

The Coding System of Chinese Medicines is developed based on science and research rooted in plant taxonomy, Chinese medicine, Chinese medicinal processing, and other established regulatory handbooks and guidelines of GS1 General standard, central product classification (CPC) and ISO/IEC 15420, etc. The codes help to translate complicated names of a wide variety of decoction pieces, Chinese Materia Medica (raw materials), and granule forms of individual medicinals for prescriptions into transparent digits. In this way, each Chinese medicine corresponds to a unique code as its identification.

The Coding System of Chinese Medicines aims to promote standardization and digitalization for Chinese medicine, to ensure authenticity, equality, fairness and transparency in international markets and trade and to facilitate government supervision and regulation of Chinese medicine. It is hoped that it will help pharmaceutical enterprises to manage workflow and increase economic returns. It will help healthcare delivery organizations, such as hospitals and dispensaries, to improve information management systems that can ensure the accuracy of dispensing, ensuring the safe and effective use of prescribed medicine.

As it has been previously acknowledged, Chinese decoction pieces are processed products of Chinese Materia Medica, which are also known as raw materials. Thus when designing the coding system for Chinese medicines, it is feasible that one set of rules could incorporate all the features of each category of Chinese medicines, as they share the same medicinal source and medical part. To be specific, their divergence and commodity attributes can be clearly described in one of the layers (layer 8) in this set of coding rules. Granule forms of individual medicinals for prescriptions are innovative products made from decoction pieces. Based on the same considerations of feasibility and cost-control, the granular forms can be included within the same set of rules for decoction pieces.

However, although Chinese patent medicines (CPM) are made from decoction pieces, their coding rules are more complicated and differ from decoction pieces. Therefore, this coding system is not fit for CPM, and coding rules for CPM need to be formulated separately.

Traditional Chinese medicine — Coding system for Chinese medicines —

Part 1: Coding rules for Chinese medicines

1 Scope

This part of ISO 18668-1 specifies rules to encode Chinese medicines, including decoction pieces, Chinese Materia Medica (raw materials) and granule forms of individual medicinals for prescriptions (GFIMP), but not Chinese patent medicines (CPM).

Relevant coding standards for Kampo medicine, Korean medicine and other traditional medicines will be separately formulated as needed by experts in these areas.

This part of ISO 18668-1 is suitable for decoction pieces, Chinese Materia Medica (raw materials), and granule forms of individual medicinals for prescriptions (GFIMP) in the fields of clinical medication, scientific research and teaching, and statistics and management.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 15420, *Information technology — Automatic identification and data capture techniques — EAN/UPC bar code symbology specification*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1
Chinese medicine
substance or combination of substances used under the guidance of traditional Chinese medicine (TCM) theory for medical care and the prevention and treatment of disease

Note 1 to entry: This includes Chinese Materia Medica, decoction pieces, granule forms of individual medicinals for prescriptions (GFIMP), and Chinese patent medicines (CPM).

3.2
Chinese Materia Medica
CMM
medicinal parts of medicinal plants, animals, and minerals after preliminary processing, which are used as raw materials in Chinese medicines

Note 1 to entry: This refers to the raw materials used to make decoction pieces.

3.3
decoction piece
prescription medicinal processed from Chinese Materia Medica under the guidance of TCM and processing methods for Chinese medicines

Note 1 to entry: Decoction pieces are directly used in clinical practice or the production of prepared medicines.

3.4
granule form of individual medicinal for prescriptions
GFIMP
granular preparation processed from single decoction piece after extraction, concentration, and drying

Note 1 to entry: This refers to a preparation of decoction pieces that can be directly dispensed without decocting.

3.5
layer
set of the characters within the code

EXAMPLE A sub-field within the code.

4 Coding principles

4.1 Uniqueness

Each variety and processed form corresponds to a unique code.

4.2 Scientific integrity

The most stable properties, attributes, or characteristics of each Chinese medicine are selected as basis for classification and coding. The basic attributes, the main applications, as well as its quality, of each Chinese medicine are reflected in the codes.

4.3 Scalability

The coding rules allow sufficient space for expansion.

4.4 Compatibility

The coding rules are consistent with relevant existing International Standards.

4.5 Stability

The code for each Chinese medicine remains unchanged once assigned, as long as the basic characteristic of the medicinal does not change. Even if some Chinese medicines are discontinued for production and use, their codes should still be kept.

5 Coding technology

5.1 Technical basis

5.1.1 Layer 1

Layer 1 with 1 digit, Chinese medicines, with the categories of agriculture, forestry, animal husbandry, and fishery are symbolized by 0, which is developed according to central product classification (CPC) developed by United Nations Statistical Commission.

5.1.2 Layer 2

Layer 2 with 1 digit, the product code of Chinese medicines, symbolized by 6, is developed according to the request of CPC and GB/T 7635.1-2002. It is used to express the natural and commodity properties of Chinese medicines, which is important for identification and trade.

5.1.3 Layer 3

Layer 3 with 1 digit, the main code of medicinal source, is encoded according to classification and codes of plants, which is based on Linnaean taxonomy categories with the modern Five Kingdoms classification. In layer 3, 1 refers to plant, 2 refers to animal, 3 refers to mineral, 4 refers to fungus, 5 refers to lichen, 6 refers to algae, and 7 refers to mixed kingdom.

5.1.4 Layer 4

Layer 4 with 3 digits ('001' to '999'), the subdivided code of medicinal source, indicates sources (family or group) and serial numbers of Chinese medicines.

5.1.4.1 In the plant category, different families of plants are encoded according to a certain classification rule from lower plants to higher plants. In layer 4, for the first digit, 1 refers to liverwort, 2 refers to moss, 3 refers to pteridophytes, 4 refers to gymnosperm, 5 and 6 refers to Archichlamydeae of dicotyledoneae, 7 refers to Sympetalae of dicotyledoneae, and 9 refers to monocotyledon. 0 and 8 are designed for future extension as needed.

5.1.4.2 In the animal category, different families of animals are encoded according to a certain classification rule from lower animals to higher animals, followed by Porifera, Coelenterata, Annulata, Mollusca, Arthropoda, Ectoprocta and Phylum Chordata.

5.1.4.3 In the mineral category, groups of minerals are encoded according to a certain classification rule from simple minerals to complex minerals, followed by Elemental mineral, Sulfides and Related Analogues, Oxides and hydroxides, Oxysalt, Halide,Magmatic rocks, Metamorphic rocks, and Fossils.

5.1.5 Layer 5

Layer 5 with 1 digit, the main code of medicinal part, ranged from 1 to 9, in which different numbers stand for different kinds of medicinal parts.

5.1.5.1 In the plant category, medicinal parts are divided into roots and bulbs, stems, woods, cortex and leaves, flowers, fruits and seeds, whole plants, and other products, symbolized by 1, 2, 3, 4, 5, and 9 respectively.

5.1.5.2 In the animal category, medicinal parts are divided into 4 subdivisions. One indicates the whole animal and eviscerated animal, 2 indicates animal skin, horn, scale, conch, 3 indicates animal skeleton and visceral organ, 4 indicates animal product and processed goods.

5.1.5.3 In the fungus category, medicinal parts are divided into mycelium, sporocarp, and other products, which are symbolized by 1, 2, and 9 respectively.

5.1.6 Layer 6

Layer 6 with 2 digits, the subdivided code of medicinal part, ranged from 01 to 99, is the second order division. For instance, as a type of medicinal plant part, rhizomes and roots can be divided into 7 subdivisions such as root, fibrous root, and so on; while flowers can be divided into 6 subdivisions as inflorescence, simple flower, flower bud, receptacle, stamen, and pistil.

5.1.7 Layer 7

Layer 7 with 3 digits, the varieties code of Chinese medicines ranged from 001 to 999 is the sequence number of the medicinal located in the code table for Chinese medicines from the same medicinal part of the same family.

EXAMPLE Both Decoction pieces of Arisaematis Rhizoma (code: 06191610600100005) and Pinellia Tuber (code: 06191610600200002) are derived from Tuber of Araceae. Their codes are same from layer 1 to 6, i.e. 061916106, but codes of layer 7 are different, i.e. Arisaematis Rhizoma encoding as 001, referring as the No.001 decoction pieces derived from Tuber of Araceae, Pinellia Tuber encoding as 002, referring as the No. 002 decoction pieces derived from Tuber of Araceae.

5.1.8 Layer 8

Layer 8 with 2 digits, ranged from 00 to 99, is used to indicate specifications of Chinese medicines. 00 indicates purifying, 01 indicates extremely thin pieces (thinner than 0,5 mm), 02 indicates thin pieces (1 mm to 2 mm), 03 indicates thick pieces (2 mm to 4 mm) or pieces, 04 indicates segments, 05 indicates blocks, 06 indicates shreds, 07 indicates powder, 08 indicates fresh medicinal, 09 indicates granule forms of individual medicinals for prescriptions, 99 indicates Chinese Materia Medica. If there are more than one kind of cutting specifications of the same Chinese medicine, the commonly used one is selected in order to reach unification. For example, Rhubarb can be specified both as piece and block, among which block is selected to stand for the specification code.

5.1.9 Layer 9

Layer 9 with 2 digits, ranged from 00 to 99, is used to indicate the processing methods of Chinese medicines. The first and second digits indicate processing methods and requirements respectively. For example, 1 as the first digit indicates plain stir-frying, while 11 and 12 indicate stir-frying until yellowish and stir-frying until brown. The number 2 as the first digit indicates stir-frying with a solid adjuvant, while 21 indicates stir-frying with bran, 22 with sand, 23 with talcum powder, 24 with clamshell powder, 25 with rice, 26 with soil, 27 with cattail pollen. The number 3 as the first digit indicates stir-frying with a liquid adjuvant, while 31 indicates stir-frying with wine, 32 with vinegar. The number 4 as the first digit indicates processing to scorch, while 41 indicates stir-frying to scorch, 42 indicates calcining to scorch. 99 indicates other processing methods.

5.1.10 Layer 10

Layer 10, is the check digit with one number, which refers to the last number calculated by a certain kind of operation method to test the accuracy of the 16 numbers former. Check digit is calculated by the method in ISO/IEC 15420.

5.2 Structure

Coding rules are represented by 10 layers with 17 digit Arabic numerals in order, as shown in Figure 1.

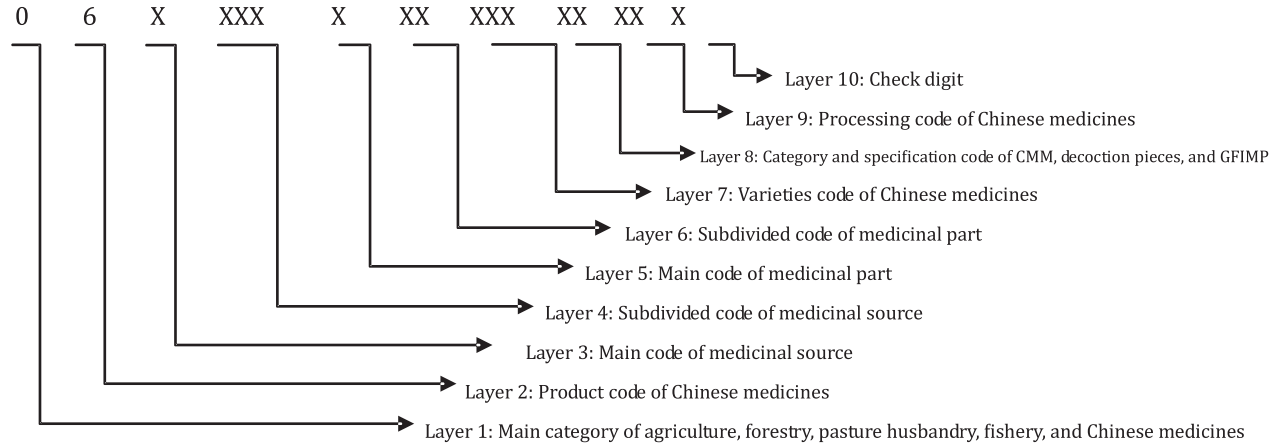

Figure 1 — Coding structure of Chinese medicines

5.3 Detailed description

Since Chinese Materia Medica is the raw material of decoction pieces, and decoction pieces are the basic materials of granule forms of individual medicinals for prescriptions, when designing the coding system for Chinese medicines, it is feasible that one set of rules could incorporate the features of both decoction pieces and Chinese Materia Medica, since they share the same medicinal source and medicinal part. So in the structure, layer 1 to layer 7 is the same for all three forms.

After being processed, decoction pieces and granule forms of individual medicinals for prescriptions are different from Chinese Materia Medica (raw materials). Thus, there are some differences in structure of the rules. Layer 8 (with 2 digits) encodes specification of medicinals. In this layer, 09 is used to express granule forms of individual medicinals for prescriptions and 99 is used to express Chinese Materia Medica. Layer 9 (with 2 digits) encodes processing codes of medicinals. Decoction pieces and granule forms of individual medicinals for prescriptions have their corresponding processing methods in layer 9.

Detailed description of coding structure of Chinese medicines are shown as follows:

Table 1 — Detailed description of coding structure of Chinese medicines

Layer No.	Classification	Digit No.	Code value	Note
Layer 1	Main category of agriculture, forestry, pasture husbandry, fishery, and Chinese medicines	1 digit	Chinese medicines are symbolized by 0.	See 5.1.1
Layer 2	Product code of Chinese medicines	1 digit	The product code of Chinese medicines is symbolized by 6.	See 5.1.2
Layer 3	Main code of medicinal source	1 digit	For the main code of medicinal source, 1 refers to plant, 2 refers to animal, 3 refers to mineral, 4 refers to fungus, 5 refers to lichen, 6 refers to algae, 7 refers to mixed kingdom.	See 5.1.3
Layer 4	Subdivided code of medicinal source	3 digits	The subdivided code of medicinal source (family, group) ranged from 001 to 999.	See 5.1.4 and Annex A
Layer 5	Main code of medicinal part	1 digit	The main code of medicinal part ranges from 1 to 9.	See 5.1.5 and Annex A
Layer 6	Subdivided code of medicinal part	2 digits	The subdivided code of medicinal part, ranged from 01 to 99, is the second order division.	See 5.1.6 and Annex A
Layer 7	Varieties code of Chinese medicines	3 digits	The varieties code, symbolized by 3 digits, is the sequence number of the medicinal located in the code table, ranged from 001 to 999.	See 5.1.7
Layer 8	Category and specification code of CMM, decoction pieces, and GFIMP	2 digits	The specification code of Chinese medicines, ranged from 00 to 99, is categorized by the cutting type or appearance.	See 5.1.8 and Annex A
Layer 9	Processing code of Chinese medicines	2 digits	The processing code of Chinese medicines, ranged from 00 to 99, is categorized according to processing methods and varieties.	See 5.1.9 and Annex A
Layer 10	Check digit	1 digit	Check digit ranges from 1 to 9.	See 5.1.10 and Annex B

Annex A
(normative)

Code table of layer 4 to layer 9

Classification code of plant sources are presented in Table A.1.

Table A.1 — Classification code of plant sources (family)

Source	Code (Layer 4)	Source	Code (Layer 4)	Source	Code (Layer 4)
Huperziaceae	301	Aizoaceae	528	Lecythidaceae	629
Lycopodiaceae	302	Portulacaceae	529	Rhizophoraceae	630
Selaginellaceae	303	Basellaceae	530	Nyssaceae	631
Lsoetaceae	304	Caryophyllaceae	531	Alangiaceae	632
Equisetaceae	305	Nymphaeaceae	532	Combretaceae	633
Psilotaceae	306	Ceratophyllaceae	533	Myrtaceae	634
Helminthostachyaceae	307	Eupteleaceae	534	Melastomataceae	635
Botrychiaceae	308	Trochodendraceae	535	Trapaceae	636
Ophioglossaceae	309	Cercidiphyllaceae	536	Onagraceae	637
Marattiaceae	310	Ranunculaceae	537	Haloragidaceae	638
Angiopteridaceae	311	Lardizabalaceae	538	Hippuridaceae	639
Christenseniaceae	312	Berberidaceae	539	Theligonaceae	640
Osmundaceae	313	Menispermaceae	540	Cynomoriaceae	641
Plagiogyriaceae	314	Magnoliaceae	541	Araliaceae	642
Gleicheniaceae	315	Calycanthaceae	542	Umbelliferae	643
Schizaeaceae	316	Annonaceae	543	Cornaceae	644
Lygodiaceae	317	Myristicaceae	544	Diapensiaceae	701
Hymenophyllaceae	318	Lauraceae	545	Clethraceae	702
Dicksoniaceae	319	Hernandiaceae	546	Pyrolaceae	703
Cyatheaceae	320	Papaveraceae	547	Ericaceae	704
Monachosoraceae	321	Cappafidaceae	548	Myrsinaceae	705
Dennstaedtiaceae	322	Cruciferae	549	Primulaceae	706
Lindsaeaceae	323	Resedaceae	550	Plumbaginaceae	707
Taenitidaceae	324	Moringaceae	551	Sapotaceae	708
Hypolepidaceae	325	Bretschneideraceae	552	Ebenaceae	709
Pteridiaceae	326	Nepenthaceae	553	Symplocaceae	710
Pteridaceae	327	Droseraceae	554	Styracaceae	711
Acrostichaceae	328	Crassulaceae	555	Oleaceae	712
Stenochlaenaceae	329	Saxifragaceae	556	Loganiaceae	713
Sinopteridaceae	330	Pittosporaceae	557	Gentianaceae	714
Adiantaceae	331	Hamamelidaceae	558	Apocynaceae	715
Parkeriaceae	332	Eucommiaceae	559	Asclepiadaceae	716
Hemionitidaceae	333	Platanaceae	560	Convolvulaceae	717
Antrophyaceae	334	Rosaceae	561	Polemoniaceae	718

Table A.1 *(continued)*

Source	Code (Layer 4)	Source	Code (Layer 4)	Source	Code (Layer 4)
Vittariaceae	335	Connaraceae	562	Hydrophyllaceae	719
Athyriaceae	336	Leguminosae	563	Boraginaceae	720
Hypodematiaceae	337	Oxalidaceae	564	Verbenaceae	721
Thelypteridaceae	338	Geraniaceae	565	Labiatae	722
Aspleniaceae	339	Tropaeolaceae	566	Solanaceae	723
Pleurosoriopsidaceae	340	Linaceae	567	Scrophulariaceae	724
Onocleaceae	341	Erythroxylaceae	568	Bignoniaceae	725
Woodsiaceae	342	Zygophyllaceae	569	Pedaliaceae	726
Blechnaceae	343	Rutaceae	570	Martyniaceae	727
Peranemaceae	344	Simaroubaceae	571	Orobanchaceae	728
Dryopteridaceae	345	Burseraceae	572	Gesneriaceae	729
Aspidiaceae	346	Meliaceae	573	Lentibulariaceae	730
Bolbitidaceae	347	Malpighiaceae	574	Acanthaceae	731
Lomariopsidaceae	348	Polygalaceae	575	Myoporaceae	732
Elaphoglossaceae	349	Dichapetalaceae	576	Phrymataceae	733
Nephrolepidaceae	350	Euphorbiaceae	577	Plantaginaceae	734
Oleandraceae	351	Daphniphyllaceae	578	Rubiaceae	735
Davalliaceae	352	Callitrichaceae	579	Caprifoliaceae	736
Gymnogrammitidaceae	353	Buxaceae	580	Adoxaceae	737
Dipteridaceae	354	Empetraceae	581	Valerianaceae	738
Cheiropleuriaceae	355	Coriariaceae	582	Dipsacaceae	739
Polypodiaceae	356	Anacardiaceae	583	Cucurbitaceae	740
Drynariaceae	357	Pentaphylacaceae	584	Campanulaceae	741
Platyceriaceae	358	Aquifoliaceae	585	Goodeniaceae	742
Grammitaceae	359	Celastraceae	586	Stylidiaceae	743
Loxogrammaceae	360	Hippocrateaceae	587	Compositae	744
Marsileaceae	361	Salvadoraceae	588	Typhaceae	901
Salvinaceae	362	Staphyleaceae	589	Pandanaceae	902
Azollaceae	363	Icacinaceae	590	Sparganiaceae	903
Cycadaceae	401	Aceraceae	591	Aponogetonaceae	904
Ginkgoaceae	402	Hippocastanaceae	592	Potamogetonaceae	905
Araucariaceae	403	Sapindaceae	593	Najadaceae	906
Pinaceae	404	Sabiaceae	594	Scheuchzeriaceae	907
Taxodiaceae	405	Balsaminaceae	595	Alismataceae	908
Cupressaceae	406	Rhamnaceae	596	Butomaceae	909
Podocarpaceae	407	Vitaceae	597	Hydrocharitaceae	910
Cephalotaxaceae	408	Elaeocarpaceae	598	Triuridaceae	911
Taxaceae	409	Tiliaceae	599	Gramineae	912
Ephedraceae	410	Malvaceae	600	Cyperaceae	913
Gnetaceae	411	Bombacaceae	601	Palmae	914
Casuarinaceae	501	Sterculiaceae	602	Cyclanthaceae	915
Saururaceae	502	Dilleniaceae	603	Araceae	916
Piperaceae	503	Actinidiaceae	604	Lemnaceae	917

Table A.1 *(continued)*

Source	Code (Layer 4)	Source	Code (Layer 4)	Source	Code (Layer 4)
Chloranthaceae	504	Ochnaceae	605	Flagellariaceae	918
Salicaceae	505	Theaceae	606	Restionaceae	919
Myricaceae	506	Guttiferae	607	Centrolepidaceae	920
Juglandaceae	507	Dipterocarpaceae	608	Xyridaceae	921
Betulaceae	508	Elatinaceae	609	Eriocaulaceae	922
Fagaceae	509	Frankeniaceae	610	Bromeliaceae	923
Ulmaceae	510	Tamaricaceae	611	Commelinaceae	924
Rhoipteleaceae	511	Cistaceae	612	Pontederiaceae	925
Moraceae	512	Bixaceae	613	Philydraceae	926
Urticaceae	513	Violaceae	614	Juncaceae	927
Podostemaceae	514	Flacourtiaceae	615	Stemonaceae	928
Proteaceae	515	Stachyuraceae	616	Liliaceae	929
Olacaceae	516	Passifloraceae	617	Amaryllidaceae	930
Opiliaceae	517	Caricaceae	618	Taccaceae	931
Santalaceae	518	Datiscaceae	619	Dioscoreaceae	932
Loranthaceae	519	Begoniaceae	620	Iridaceae	933
Aristolochiaceae	520	Ancistrocladaceae	621	Musaceae	934
Rafflesiaceae	521	Cactaceae	622	Zingiberaceae	935
Balanophoraceae	522	Thymelaeaceae	623	Cannaceae	936
Polygonaceae	523	Elaeagnaceae	624	Marantaceae	937
Chenopodiaceae	524	Lythraceae	625	Burmanniaceae	938
Amaranthaceae	525	Sonneratiaceae	626	Orchidaceae	939
Nyctaginaceae	526	Crypteroniaceae	627	Agavaceae	940
Phytolaccaceae	527	Punicaceae	628	Multi-sources	999

Classification code of animal sources are presented in Table A.2.

Table A.2 — Classification code of animal sources (family)

Phylum	Class	Scores	Code (Layer 4)
Porifera	Demopongiae	Spongillidae	001
Coelenterata	Actinozoa	Melitodidae	021
		Dendrophylliidae	022
Annulata	Oligochaeta	Megascolecidae	031
		Lumbricidae	032
	Hirudinea	Hirudinidae	041
Mollusca	Lamellibranchia	Ostreidae	051
		Veneridae	052
		Arcidae	053
	Gastropoda	Haliotidae	061
		Cypraeidae	062
	Cephalopoda	Sepiidae	071
Arthropoda	Chilopoda	Scolopendridae	081
	Crustacea	Grapsidae	091
		Calliphoridae	092
		Palaemonidae	093
	Insecta	Pentatomidae	101
		Corydiidae	102
		Coccidae	103
		Mantidae	104
		Meloidae	105
		Vespidae	106
		Apidae	107
		Cicadidae	108
		Bombycidae	109
		Lacciferidae	110
		Gryllotalpidae	111
		Cynipidae	112
		Tabanidae	113
		Scarabaeidae	114
		Gryllidae	115
		Formicidae	116
		Myrmeleontidae	117
		Staphylinidae	118
		Calliphoridae	119
		Blattellidae	120
	Arachnoida	Buthidae	151
Ectoprocta	Gymnolaemata	Poricellariidae	181
		Hominidae	201
		Bovidae	202
		Equidae	203
		Manidae	204
		Suidae	205

Table A.2 *(continued)*

Phylum	Class	Scores	Code (Layer 4)
Phylum Chordata	Mammalia	Cervidae	206
		Vespertilionidae	207
		Mustelidae	208
		Canidae	209
		Petauristidae	210
		Phocidae	211
		Elephantidae	212
		Erinaceidae	213
	Amphibia	Ranidae	231
		Bufonidae	232
	Aves	Phasianidae	241
		Anatidae	242
		Cuculidae	243
	Reptilia	Colubridae	251
		Emydidae	252
		Elapidae	253
		Gekkonidae	254
		Viperidae	255
		Trionychidae	256
		Cheloniidae	257
		Hydrophiidae	258
		Agamidae	259
	Pisces	Syngnathidae	271
		Sciaenidae	272
		Cyprinidae	273
		Pegasidae	274
		Triakidae	275
		Multi-sources	999

Classification code of mineral sources are presented in Table A.3.

Table A.3 — Classification code of mineral sources (group)

Main category	Subdivided category	Source	Code (Layer 4)
Elemental mineral	Metals	Iron	001
	Nonmetals	Natural sulfur	031
	Mixture of metals and nonmetals	Steel	081
Sulfides and Related Analogues	Monosulfide	Galenite	101
		Cinnabar	102
		Realgar	103
	Disulphide	Pyrite	121
NOTE Classified according to the anion type of mineral sources.			

Table A.3 *(continued)*

Main category	Subdivided category	Source	Code (Layer 4)
Oxides and hydroxides	Oxides	Corundum	141
		Soft manganese ore	142
		Quartz	143
		Magnetite	144
		Arsenolite	145
		Mercuric oxide	146
	Hydroxides	Limonite	171
Oxysalt	Inosilicates	Amphibole	201
	Phyllosilicates	Talcum	221
		Muscovite	222
		Kaolinite	223
		Vermiculite	224
	Borates	Borax	241
	Sulfates	Anhydrite	261
		Melanterite	262
		Alunite	263
		Glauber's salts	264
		Blue vitriol	265
	Carbonates	Calcite	266
	Nitrates	Saltpeter	281
Halide	Fluorides	Fluorite	301
	Chlorides and bromiodides	Halite	321
		Mercurous chloride	322
		Sal ammoniac	333
Magmatic rocks	Magmatic rocks	Eruptive rock	361
Metamorphic rocks	Metamorphic rocks	Metamorphic rocks	371
Fossils	Fossils	Fossils	381
		Multi-sources	999
NOTE Classified according to the anion type of mineral sources.			

Classification code of fungus, lichen, and algae sources are presented in Table A.4.

Table A.4 — Classification code of fungus, lichen, and algae sources (family)

Kingdom	Source	Code (Layer 4)
Fungus	Lycoperdaceae	001
	Polyporaceae	002
	Clavicipitaceae	003
	Tricholomataceae	004
	Auriculariaceae	005
	Agaricaceae	006
	Hydnaceae	007

Table A.4 *(continued)*

Kingdom	Source	Code (Layer 4)
Lichen	Sargassaceae	001
	Oscillatoriaceae	002
	Delesseriaceae	003
	Laminariaceae	004
Algae	Umbilicariaceae	001
	Usneaceae	002

Classification code of medicinal parts are presented in Table A.5.

Table A.5 — Classification code of medicinal parts

	Main code (Layer 5)		Subdivided code (Layer 6)	
	category	code	category	code
	Rhizome and root	1	Tap root	01
			Fibrous root	02
			Root and rhizome	03
			Root tuber	04
			Rhizome	05
			Tuber	06
			Bulb	07
			Corm, pseudobulb	08
	Stem, wood, bark and leaf	2	Liana	01
			Ramulus/Branch	02
			Stem thorn and pith	03
			Wood and heart wood/Lignum	04
			Stem Bark	05
			Root bark	06
			Leaf blade	07
			Petiole	08
			Erect stem	09
			Herbaceous stem	10
			Succulent stem	11
			Stem, branch and leaf	12
Plants	Flower	3	Inflorescence	01
			Simple flower	02
			Flower bud	03
			Receptacle	04
			Stamen or anther, pollen, filament	05
			Pistil or stigma, style, ovary	06
			Spica	07
			Persistent calyx	08

Table A.5 *(continued)*

	Main code (Layer 5)		Subdivided code (Layer 6)	
	category	**code**	**category**	**code**
	Fruit and seed	4	Unripe or young fruit	01
			Ripe or nearly ripe fruit	02—03
			Pericarp or exocarp, mesocarp, sarcocarp, endocarp	04
			Kernel	05
			Seed	06
			Seed coat	07
			Aril	08
			Other	09
	The whole plant and ground plant	5	Whole plant/ Herb	01—02
			Above ground part/aerial part	05—06
	Other products	9	Spore	01
			Resin	02
			Plant oil	03
			Processed goods	08
			Other part	09
Animals	The whole animal and eviscerated animal	1	The whole animal	01
			Eviscerated animal	02
	Animal skin, horn, scale, conch	2	Skin	01
			Horn	02
			Scale and conch	03
	Animal skeleton and visceral organ	3	Skeleton	01
			Visceral organ	02
	Animal product and processed goods	4	Animal product	01
			Processed goods	02
			Other	09
Mineral	Mineral	1	Mineral	01
Fungus	Mycelium	1	Fungus	01
	Sporocarp	2	Sporocarp (fruiting body)	01
	Other products	9	Other	01
Algae	Frond	1	Frond	01
Lichen	Thallus	1	Thallus	01
Mixed kingdom	Mixed kingdom	1	Mixed kingdom	01

Specification and processing codes are presented in Table A.6.

Table A.6 — Specification and processing code

Specification (Layer 8)			Processing (Layer 9)		
Category and specification code of CMM, decoction pieces, and GFIMP		Code	Main processing	Subdivided processing	Code
Decoction pieces	Purifying (e.g. eliminating impurities and removing non-medical parts)	00		Purifying	00
	Extremely thin pieces (thinner than 0,5 mm)	01	Plain stir-frying	Stir-frying until yellow	11
	Thin pieces (1 mm to 2 mm)	02		Stir-frying until brown	12
	Thick pieces (2 mm to 4 mm) or pieces	03	Stir-frying with solid adjuvant	Stir-frying with bran	21
	Segments	04		Stir-frying with sand (scalding)	22
	Blocks	05		Stir-frying with clamshell powder	23
	Shreds	06		Stir-frying with talc powder	24
	Powder	07		Stir-frying with rice	25
	Use fresh	08		Stir-frying with earth	26
Granule forms of individual medicinals for prescriptions (GFIMP)		09		Stir-frying with cattail pollen	27
Chinese Materia Medica (CMM)		99	Stir-frying with liquid adjuvant	Wine	31
				Vinegar	32
				Salt	33
				Ginger	34
				Honey	35
				Soil	36
				Gancaozhi (Liquorice juice)	37
				Wuzhuyuzhi (Evodia fruit juice)	38
				Other adjuvant	39
			Processing to scorch	Stir-frying to scorch	41
				Calcining to scorch	42
			Calcining	Calcining openly	51
				Calcining and quenching	52
			Steaming or stewing	Without adjuvant	60
				Wine	61
				Vinegar	62
				Salt	63
				Autoclaving	64
				Other adjuvant	69

Table A.6 *(continued)*

Specification (Layer 8)		Processing (Layer 9)		
Category and specification code of CMM, decoction pieces, and GFIMP	**Code**	**Main processing**	**Subdivided processing**	**Code**
		Decocting or repeated processing	Without adjuvant	70
			Gancao (Liquorice) as main adjuvant	71
			Shengjiang (Fresh Ginger) as main adjuvant	72
			Baifan (Alum) as main adjuvant	73
			Solid adjuvant as main adjuvant	74
			Other adjuvant	79
		Others	Roasting	80
			Simmering/braising	81
			Chan (one method of water and fire processing)	82
			Crystallizing or powdering	83
			Making herbs into wool	84
			Grinding with water	85
			Sprouting	86
			Fermenting	87
			Stirring and mixing with Zhusha (Cinnabar)	88
			Stirring and mixing with Qingdai (Natural Indigo)	89
			Rinsing with rice water	90
			Washing with wine	91
			Xianzhi (processing with a decoction of the appropriate prescription)	92
			Processing with Zhuli (Bamboo juice)	93
			More than 2 methods	94
			Processing into glue	96
			Other	99

Annex B
(normative)

Calculation of check digit

B.1 General

Check digit is calculated by the method in ISO/IEC 15420:2009.

B.2 Serial number of code location

It indicates the serial number of the 17 digits from the right to the left, among which check digit is specified as 1.

B.3 Calculation steps

Calculation steps are shown as follows:

a) sum up the digits located below even serial numbers from serial number 2, to get result ①;

b) multiply ① by 3 to get result ②;

c) sum up the digits located below odd serial numbers from serial number 3, to get result ③;

d) sum up ② and ③ to get result ④;

e) subtract ④ by a number which is larger or equal to ④, and also be the smallest multiple of 10, to get the digit of check digit.

For example: The calculation of code 06141021000199004 (the check digit is the last number '5') for Mahuang (*Herba Ephedrae*, Ephedra) is demonstrated in Table B.1.

Table B.1 — Calculation of check digit

Steps	Demonstration
Number from the right to the left	Serial number: 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 Digits: 0 6 1 4 1 0 2 1 0 0 0 1 9 9 0 0 X
a) Sum up the digits located below even serial numbers from serial number 2, to get result ①.	0+9+1+0+1+0+4+6＝21 ①
b) Multiply ① by 3 to get result ②.	21×3＝63 ②
c) Add the digits located below odd serial numbers from serial number 3, to get result ③.	0+9+0+0+2+1+1+0＝13 ③
d) Add ② and ③ to get result ④.	63+13＝76 ④
e) Subtract ④ by a number which is a larger or equal to ④, and also be the smallest multiple of 10, to get the digit of check digit.	80–76 = 4 Check digit X=4

Annex C
(informative)

Examples

An example is provided to explain the coding rules. Codes of Ephedra (Chinese Materia Medica), Ephedra (decoction pieces), Ephedra Root, Honey-processed Ephedra, and Granular Ephedra are presented in Figure C.1.

Ephedra varieties

Pictures	Names	Codes	
	Ephedra (Chinese Materia Medica)	0 6 1 410 2 10 001	99 00
	Ephedra (decoction pieces)	0 6 1 410 2 10 001	04 00
	Ephedra Root	0 6 1 410 1 03 001	03 00
	Honey-processed Ephedra	0 6 1 410 2 10 001	04 35
	Granular Ephedra (Granule form of individual medicinal for prescriptions)	0 6 1 410 2 10 001	09 00

Figure C.1 — Code for Ephedra specifications

NOTE These items share the same source, so their codes are same from layer 1 to 4. However, with different medicinal parts, layer 5 and 6 are different, 1 03 indicates rhizome and root, 2 10 indicates the herbaceous stem. With different specifications and processing methods, codes of layer 8 and 9 are different: In layer 8, 99 refers to Chinese Materia Medica; 04 refers to segments; 03 refers to pieces; 09 refers to granule forms of individual medicinals for prescriptions. In layer 9, 00 stands for decoction pieces without special processing; 35 refers to honey-processing. The 10th check digit is omitted.

Ephedra and Ephedra Root are different in clinical application, which should be distinguished in codes. Ephedra is a pungent-warm exterior-releasing medicine to promote sweating, but Ephedra Root is an astringent medicine used to stop sweating. Layers 5 and 6 from Ephedra and Ephedra Root are different in coding, i.e. 210 and 103. Since they all originate from the official specified ephedra plants, i.e. *Ephedra sinica* Stapf, *Ephedra intermedia* Schrenk et C.A.Mey., and *Ephedra equisetina* Bge., their codes are the same from layers 1 to 4, i.e. 0 6 1 410 X XX XXX XX XX X. However, Ephedra and Ephedra Root are from different parts of the plant, that is, the former originates from the herbaceous stem, while the latter from the root and rhizome.

Consider Pinellia Tuber as another example. Since Pinellia Tuber is toxic, it is generally used after processing instead of being used raw. Processing helps to: 1) reduce toxicity or side effects, ensuring safety in administration, 2) alter its efficacy to expand its application, 3) change its channel tropism. Types of Pinellia Tuber can be classified into raw Pinellia Tuber, Alum-processed Pinellia Tuber, Ginger-Alum-processed Pinellia Tuber, Liquorice-limewater-processed Pinellia Tuber, and granular Liquorice-limewater-processed Pinellia Tuber. In the standard application of Chinese medicine, the processing of Pinellia Tuber is varied and complicated, which results in varied efficacy and applications. But the forms are the same in origin and plant parts, so that their codes are the same from layers 1 to 7, i.e. 0 6 1 916 1 06 002 XX XX X. Figure C.2 shows how to distinguish them by codes.

Pinellia varieties

Pictures	Names	Codes								
	Pinellia Tuber (Chinese Materia Medica)	0	6	1	916	1	06	002	99	00
	Pinellia Tuber(decoction pieces)	0	6	1	916	1	06	002	00	00
	Alum-processed Pinellia Tuber	0	6	1	916	1	06	002	00	73
	Ginger-Alum-processed Pinellia Tuber	0	6	1	916	1	06	002	00	72
	Liquorice-limewater-processed Pinellia Tuber	0	6	1	916	1	06	002	00	71
	Granular Liquorice-limewater-processed Pinellia Tuber	0	6	1	916	1	06	002	09	71

Figure C.2 — Codes for Pinellia Tuber specifications

NOTE Pinellia Tuber is toxic, and the processing is complicated. The effects of different processed Pinellia vary in clinical practice. Since they share the same source and medical part, their codes are same from layers 1 to 7. But with different specifications and processing methods, codes of layer 8 are different: Chinese Materia Medica is encoded as 99; Pinellia Tuber, Alum-processed Pinellia Tuber, Ginger-Alum-processed Pinellia Tuber, Liquorice-limewater-processed Pinellia Tuber, all purifying processed, are encoded as 00; Granular Liquorice-limewater-processed Pinellia Tuber is encoded as 09. Codes of layer 9 are different: 71 refers to processing mainly with Liquorice, 72 mainly with Fresh Ginger, 73 mainly with Alum. The 10th check digit is omitted.

There is raw Pinellia Tuber, Alum-processed Pinellia Tuber, Ginger-Alum-processed Pinellia Tuber, Liquorice-limewater-processed Pinellia Tuber in application of Chinese medicines. They have similar efficacy including drying dampness, resolving phlegm, descending qi, relieving vomiting, dispersing abdominal masses and dissipating masses. Additionally, they also have different efficacy: for example, raw Pinellia Tuber is toxic without processing, and can produce strong irritation of the mouth, throat and gastrointestinal mucosa, as well as symptoms including aphonia, salivation, breathing difficulties, and even choking to death. Pinellia Tuber is used to dispel wind, dissipate static blood, disperse furuncles, and for external application. Alum-processed Pinellia Tuber is used to dispel wind phlegm, resolve fluid retention, dissipate chest stuffiness and descend counterflow qi. Ginger-Alum-processed

Pinellia Tuber is used to harmonize the stomach and relieve vomiting, dispel cold-phlegm, and relieve cough and fluid retention. Liquorice-limewater-processed is used to dispel phlegm and relieve cough and remove turbid dampness. In summary, raw Pinellia Tuber, Alum-processed Pinellia Tuber, Ginger-Alum-processed Pinellia Tuber, Liquorice-limewater-processed Pinellia Tuber are from the same origin, but the differences in their processing will result in different applications. They cannot be mixed and interchanged. Therefore, the different types of Pinellia Tuber have different codes.

Detailed description of coding structure of Pinellia Tuber (decoction pieces) are presented in Figure C.3.

Pinellia Tuber (decoction pieces) Codes: 06191610600200002

0	Layer 1, main category of agriculture, forestry, pasture husbandry, fishery, and Chinese medicines is symbolized by 0.
6	Layer 2, product code of Chinese medicines is symbolized by 6.
1	Layer 3, main code of medicinal source plant; Plant sources is symbolized by 1.
916	Layer 4, subdivided code of medicinal source. Pinellia Tuber is orginated form Pinellia ternata (Thunb.)Breit (Araceae). And Araceae is symbolized by 916.
1	Layer 5, main code of medicinal part. Pinellia Tuber is orginated form the Tuber of Pinellia ternata (Thunb.)Breit. Tuber is the subdivided category of Rhizome and root which is symbolized by 1.
06	Layer 6, subdivided code of medicinal part. Tuber is symbolized by 06.
002	Layer 7, varieties code of Chinese medicines, is symbolized by 3 digits in the order that Chinese medicines appear when their code of layer 1 to layer 6 are the same.
00	Layer 8, category and specification code of CMM, decoction pieces, and GFIMP. 00 indicates that specification of Pinellia Tuber is Purifying (e.g. eliminating impurity and removing the non-medical part).
00	Layer 9, processing code of Chinese medicines. 00 indicates that Pinellia Tuber is processed after purifying. In other cases, 11, 12 and 21 indicate stir-frying to yellow, stir-frying to brown, and stir-frying with bran respectively
2	Layer 10, the check digit, is randomly computer generated, following check digit rules.

Figure C.3 — Detailed description of coding structure of Pinellia Tuber (decoction pieces)

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ICS 11.120.10

Price based on 23 pages