

Source of variation of genuine herbs and spices
 'Review from ISO standards (International Organisation for Standardisation)

Spice
Dried herb
Dried bulb

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PRODUCT	Std No	Definition (according to ISO)	Source of variation 1 VARIETIES OR SPECIES (according to ISO)	Source of variation 2 ORIGIN	Source of variation 3 Extraneous (e.m.) & foreign (f.m.) matters (according to ISO 928)	Source of variation 4 Grades and recipes (according to ISO)	Source of variation 5 Chemical & physical parameters (according to ISO or ESA)
BASIL (<i>Ocimum basilicum</i> L.) cut	ISO 11163 1995	Dried leaves collected before flowering of dried sweet basil <i>Ocimum basilicum</i>	Varieties/cultivars	Main : Egypt Others : USA, France	Max 1% (e.m.+f.m.) Max 3% (seeds & stems)	-	Total ash, acid-insoluble ash, VO
BLACK PEPPER (<i>Piper nigrum</i> L.) whole	ISO 959-1 1998	Dried berries of <i>Piper nigrum</i> L. Berry = regular berry, broken berries, light berry and pepper pinhead. According to the level of cleaning, there are max levels tolerated for the 3 of them	Varieties/cultivars	Main : Vietnam, Brazil, India, Indonesia Others : Sri Lanka, Madagascar, China, Costa Rica	Max 1.5% and 2.5% (e.m.) according to the level of cleaning (processed vs semi- or non-processed)	Grades according to the bulk density (depending mainly on the level of light berries)	Light berries, pinhead and broken berries, bulk density VO, piperine, total ash
BLACK PEPPER (<i>Piper nigrum</i> L.) ground	ISO 959-1 1998	Ground black pepper berries without addition of foreign matters	Varieties/cultivars	Same as black pepper whole	"it is recommended that a microscopic examination be carried out"	-	Bulk density, VO, piperine, total ash Acid-insoluble ash, crude fiber
WHITE PEPPER (<i>Piper nigrum</i> L.) whole	ISO 959-2 1998	Berry of <i>Piper nigrum</i> L., from which the outer pericarp has been removed	Varieties/cultivars	Main : Vietnam, Brazil, Indonesia, China Others : Cameroun, Malaysia	Max 0.8% (e.m.) and 1.0% (f.m.) according to the level of cleaning (processed vs semi-processed) Black and broken berries are not considered as extraneous matter	Two ways to get whole white pepper by removing the outer pericarp of : a) whole dry berry of <i>Piper nigrum</i> L. b) whole ripe berry of <i>Piper nigrum</i> L. Grades according to the percentage of remaining black berries	Bulk density VO, piperine, total ash
WHITE PEPPER (<i>Piper nigrum</i> L.) ground	ISO 959-2 1998	White black pepper berries without addition of foreign matters	Varieties/cultivars	Same as white pepper whole	-	Same as white pepper whole	Bulk density VO, piperine, total ash, acid- insoluble ash, crude fiber
CAPSCICUMS & CHILLI (<i>Capsicum</i> spp) whole, ground	ISO 972 1997	<i>Capsicum annuum</i> L. and <i>C. frutescens</i> L., and their sub- species <i>C. chinense</i> , <i>C. pubescens</i> and <i>C. pendulum</i> In international trade and irrespectively of pungency, a rough differentiation is made between chillies and capsicums on purely size basis, varieties above 25 mm in length being considered a capsicum	Species and varieties/cultivars (pungency, dimensions, shape and colour vary widely)	Main : India, China Others : Mexico, Eastern Africa	Max 1% (e.m.+f.m.)	Ground chillies and ground capsicums are the products obtained by grinding whole chillies and whole capsicums, respectively, without any added matter. Mixtures of chillies and capsicums as blended powders are common.	Total ash, acid-insoluble ash

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CASSIA (<i>Cinnamomum</i> spp) quill/chip/ground	ISO 6538 1997	Chinese type cassia : bark of <i>Cinnamomum cassia</i> Indonesian type cassia : bark of <i>Cinnamomum burmanii</i> Vietnamese type cassia : bark of <i>Cinnamomum loureirii</i> <u>Whole quills</u> : scraped epiderm of the internal bark of mature cassia shoots rolled into a single or double quill <u>Scraped bark</u> : bark obtained from the young shoots scraped with a curved knife <u>Unscraped bark</u> : as above but unscraped. <u>Pieces</u> : resulting from the trimming/sorting/ handling/packing of quills, scraped or unscraped <u>Ground cassia</u> : powder obtained by grinding the various types described above excluding all additives	Species	Main : Indonesia, Vietnam, China	Extraneous matter in cinnamon includes leaves, stems, chaff and other vegetable matter together with sand, earth and dust : max 1%	scraped or unscraped Small pieces, which may be scraped or unscraped, resulting from the trimming, sorting, handling and packing of the rolls.	Total ash, acid-insoluble ash, VO
CINNAMON (<i>Cinnamomum zeylanicum</i> B.) quill, chip, ground	ISO 6539 2014	Sri Lankan-type is dried bark of cultivated varieties of <i>Cinnamomum zeylanicum</i> B. under the following forms. <u>Quill</u> : scraped peel of inner bark of mature plantation cinnamon shoots joined together by overlaps whose hollow is filled with small pieces of the same peel <u>Quilling</u> : broken quill <u>Feathering</u> : obtained by peeling/scraping bark of small twigs and stalks <u>Chip</u> : dried unpeelable bark inclusive of the outer bark <u>Ground</u> : powder obtained by grinding the various types described above excluding all additives	Varieties/cultivars	Main : Sri Lanka Others : Madagascar, Seychelles	Extraneous matter in cinnamon includes leaves, stems, chaff and other vegetable matter together with sand, earth and dust : max 1% Quills : "unscraped inner bark, scrapings, foreign matter, bark of wild cinnamon and other genera shall not be present"	Quill grades according to : - foxing (occurrence of reddish-brown patches on the surface of the quills (may turn darker with time), - diameter, - length, - broken	Total ash, acid-insoluble ash, VO
CORIANDE (<i>Coriandrum sativum</i> L.) whole, ground	ISO 2255 1996	Dried mature fruit of <i>Coriandrum sativum</i> L. Fruits spherical to elliptical	Varieties/cultivars (difference of size & shape)	Main : Morocco, Ukraine, Eastern Europe, Egypt, India Others : Western Europe, China, Iran	Max 1.5% (e.m.+f.m.) for grade 1 Max 2% (e.m.+f.m.) for grade 2 Max 4% (e.m.+f.m.) for grade 3	Grade as a function of split, damaged, discoloured, immature, shrivelled and weevilled fruits	Total ash, acid-insoluble ash, VO
CUMIN (<i>Cuminum cyminum</i> L.) whole, ground	ISO 6465 2009	Fruits of <i>Cuminum cyminum</i> L.	-	Main : Turkey, Syria, India Others : Iran	Max 0.5% (f.m.) Max 1% (e.m.) for grade I Max 2% (e.m.) for grade II Max 3% (e.m.) for grade III	Grades according to level of extraneous matter level	Total ash, acid-insoluble ash, VO, non-volatile ether extract
GARLIC (<i>Allium sativum</i> L.) flake, slice, grit, ground	ISO 5560 1997	Dried cloves of garlic cultivars (<i>Allium sativum</i> L.)	Varieties/cultivars	Main : China Others : US	Max 0.5% (e.m. : skin and root)	No bleaching or precooking. No grade described in ISO	Total ash, acid-insoluble ash, volatile organic sulfur compounds, cold-water-soluble extract

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GINGER (<i>Zingiber officinale</i> R.) cut, ground	ISO 1003 2008	Dried, peeled or unpeeled rhizome of <i>Zingiber officinale</i> Roscoe May be limed	Varieties/cultivars	Main : China, India, Nigeria, Indonesia Others : Nepal, Bangladesh	Max 1% (e.m.) Max 0.5% (f.m.)	-	Total ash, acid-insoluble ash, VO, calcium content
NUTMEG (<i>Myristica fragrans</i> Houtt.) whole, broken	ISO 6577 2002	Kernel of the dried ripe fruit of the nutmeg tree <i>Myristica fragrans</i> . Not applicable to <i>Myristica argente</i> . May be limed presenting a whitish surface colour	-	Main : Indonesia Others : India, Sri Lanka, Zanzibar, West Indies	Max 0.5% (e.m.+f.m.)	- Whole sound nutmegs classified as a function of size (60/65, 80/85, 100/110, 110/120, 120/130 and 130/150 nut per pound) - Sound shrivels (shrivelled but no insect attack) - BWP or defectives	Total ash, acid-insoluble ash, VO, calcium content
ONION (<i>Allium cepa</i> L.) Slice, grit, flake, granule, ground	ISO 5559 1995	Dehydrated bulbs of any onion cultivars (<i>Allium cepa</i> L.) without any bleaching or precooking Bulbs being practically free from soil, outer skins, stems, leaves and roots	Varieties/cultivars (white, yellow and red onions)	Main : China Others : India, USA, Turkey	Max 0.5% (white onion, extra) Max 1% (yellow or red onion, extra) Max 2% (yellow or red onion, 1) Max 5% (yellow or red onion, 2)	Categories according to colour, presentation and extraneous matter content	Total ash, acid-insoluble ash, crude fiber
OREGANO (<i>Origanum vulgare</i> L.) whole, cut, ground	ISO 7925 1995	Dried leaves of perennial <i>Origanum</i> genus (wild marjoram), species and sub-species (Lamiaceae family) excluding <i>Origanum majorana</i> (sweet marjoram), in the whole or ground form. <i>Warning : "oregano, Mexican type" does not come from the Origanum genus, but from the Lippia genus</i>	<i>Origanum</i> genus species and sub-species excluding <i>Origanum marjoram</i>	Main : Turkey, Morocco, Mexico, Peru, Chile Others : Italy, Greece, France	Max 1% and 3% (e.m.) according to the level of cleaning (processed vs semi-processed) Broken stalk and other parts of the plant in the oregano below 3 % Flowering tops shall not be considered as e.m.	-	VO, total ash, acid-insoluble ash
PAPRIKA (<i>Capsicum annum</i> L.) ground	ISO 7540 2006	Ground paprika is the product obtained by grinding the ripe dried fruits of different varieties of <i>Capsicum annum</i> .	Varieties/cultivars	Main : China, Peru, Others : US, Spain, Hungary, Serbia, Israel, South Africa	Extraneous matters and foreign matters measured by microscopic examination, specs as per agreement between buyer and seller	Prepared from pericarp and seeds of the fruit ; may contain a variable amount of placenta, calyx and stalk. Additives (antioxidants, anti-caking agents, etc.) : allowed if labeled in accordance with the regulations of the target country. Colour varies according to quality : 4 categories ranging from 60 to 120 asta	Scoville (pungency), total ash, acid-insoluble ash, non-volatile ether extract
SAFFRON (<i>Crocus sativus</i> L.) filament, ground	ISO 3632-1 2011	Filament : dried stigmas with a part of style of the <i>Crocus sativus</i> L. flower Cut filament = styles removed Saffron powder : filaments of the <i>Crocus sativus</i> L. flower	-	Main : Iran Others : Greece, Spain, Afghanistan, Morocco, India, Italy	"No matter added to natural product", No foreign matters from animals Max 5%, 3% and 0.5 (e.m.) as per grade Max 1%; 0.5% and 0.1% (f.m.) as per grade	3 grades according to colour strength (expressed as crocin) I = 120 II = 170 III = 200	Total ash, acid-insoluble ash, cold-water-soluble extract, picrocrocin, safranal, crocin

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STAR ANISE (<i>Illicium verum</i> Hook) whole	ISO 11178 1995	Dried mature fruit of <i>Illicium verum</i> Beware of contamination by <i>Illicium anisatum</i> (japanese star anise) which is not edible	-	Main : China, Others : Vietnam, India	Max 2% (e.m.+f.m.) Max 3% stalks	Grades according to the percentage of broken and abnormal fruits	VO, total ash
THYME (<i>Thymus vulgaris</i> L.) whole, cut, ground	ISO 6754 1996	Dried leaves and flowers of <i>Thymus vulgaris</i> in the rubbed form	Chemotypes	Main : Poland, Turkey, Morocco, Egypt Others : Spain, France	Max 1% (f.m.)	-	VO, total ash, acid-insoluble ash
TURMERIC (<i>Curcuma longa</i> L.) whole, ground	ISO 5562 1983	Cured primary or secondary rhizomes, called commercially bulbs or fingers, of <i>Curcuma longa</i> L.	-	Main : India Others : China, Thailand, Indonesia	Max 2% (e.m.+f.m.) Foreign matters may be chaff, dried leaves, stones, particles of soil, dust and mud	Whole turmeric is graded according to its presentation (rhizomes, fingers or bulbs), its origin and its extraneous matter content.	Total ash, acid-insoluble ash, colouring power

NOTE	ISO 927 - 2009 Determination of extraneous and foreign matter contents <u>Extraneous matters</u> : all matter visible to the naked eye or with a maximum 10 times magnifying power that is not part of the plant to which the spice or herb belongs <u>Foreign matters</u> : all matter visible to the naked eye or with a maximum 10 times magnifying power which are species waste belonging to the plant which the spice or herb belongs
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