CIBJO The World Jewellery Confederation
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CIBJO Guides

Jade

A taxonomy for Fei Cui (翡翠), Jade, Jadeite, Jadeitite, Nephrite, and Yu (玉).

"A well balanced global understanding of the jades and the underpinning culture ……..

Image Courtesy Stanley Chu of On Tung Jewellery Co. Ltd.

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Schluessel, R. (2022) Glossary Jades & lookalikes. In Jade A Gemologist's Guide, Edited by Hughes, R.W., Bangkok: Lotus Publishing, pp. 480–485.

Language

While CIBJO documents may be, and are, often translated into other languages, the official language for all CIBJO Documents is English. Therefore, all understandings and interpretations shall refer back to the English original.

Foreword

CIBJO is the French acronym for the Confédération Internationale de la Bijouterie, Joaillerie, Orfèvrerie, des Diamants, Perles et Pierres, which translates as the International Confederation of Jewellery, Silverware, Diamonds, Pearls and Stones (normally shortened to the International Jewellery Confederation). Founded in 1926 as BIBOAH, a European organisation whose mission was to represent and advance the interests of the jewellery trade in Europe, it was reorganised in 1961 and renamed CIBJO, in 2009 it was once again reorganized and officially named “CIBJO, The World Jewellery Confederation”. Today CIBJO, which is domiciled in Switzerland, is a non-profit confederation of national and international trade associations including commercial organisations involved in the jewellery supply chain. It now has members from countries representing all five continents of the world. CIBJO printed its first deliberations on terminology and trade practices in 1968.

The work of CIBJO is accomplished through Working Groups, Committees, Commissions and Sectors. Working Groups, Committees and Commissions consider standards for use in the jewellery supply chain. Sectors represent levels of trade in the jewellery industry. Sectors and commissions advise the Executive Committee on current trade practices and issues that affect the jewellery industry.

Three independent sectors exist within the confederation:

Sector A - The Products Sector
Sector B - The Supply Chain Sector
Sector C - The Service Sector

CIBJO Secretariat:

CIBJO, the World Jewellery Confederation
Viale Berengario 19, 20149,
Milano, Italy

Tel: +39-02-4997-7098 / 7097 / 6187
E-mail: cibjo@cibjo.org
Web site: www.cibjo.org

The position of CIBJO on Jade nomenclature.

At its core, any nomenclature system is a means of classification, a way to create logical categories that can be used to educate others. Like a garden, nomenclature systems require regular maintenance to remove overgrowth and “deadwood”.

Nomenclature evolves naturally over time as it reflects the current state of knowledge. As understanding deepens, we often discover that items once thought to belong to one category more properly fit into another. At that point, we face a choice: move the item to the category that best represents it, or allow it to remain where it is as an exception. Every nomenclature system has these exceptions. This CIBJO guide examines one such case with jade, where mineral species names may have been improperly applied to gem materials that are actually rocks.

This is not a purely academic exercise as financial costs may apply as a real consequence in a world where third party verification of gem materials is a requirement, i.e., gem testing costs that involve the non-destructive analyses of rocks can be prohibitive, particularly at the low value end.

CIBJO takes no official position on this question. We recognize that many parties, particularly in China and across the East, consider the replacement of the terms/names jadeite, omphacite, and kosmochlor with the collective term/name fei cuì to be consistent with modern gemmological practice. Accordingly, they see no deception in marketing a gem whose constituent minerals are intimately intergrown under this unified term, a tradition that dates back to the early 1700s. At the same time, CIBJO acknowledges that traders, gemmologists, and consumers may prefer to divide pyroxene jade into its individual mineral components.

CIBJO remains neutral on these differing approaches and accepts that variations in practice may exist between regions and that neither approach should be considered an unfair trade practice.

There are sound reasons why nomenclature cannot, and should not, be expected to be identical everywhere. Each culture uses language to describe the world in its own way. The issue of ‘yù’ versus ‘jade’ illustrates this clearly: the two words carry distinct meanings, and neither has an exact equivalent in the other language.

The proliferation of different languages and dialects reflects the diversity of human cultures. Nomenclature, therefore, inevitably carries a cultural dimension and must accommodate meaningful regional and linguistic differences where they arise.

In the pages that follow, we aim to present this complex subject logically and consistently, bearing these principles in mind. The discussion represents the outcome of extensive dialogue among representatives from around the world.

Jade is a human treasure. It is our hope that this guide will foster greater understanding of this remarkable natural canvas, beloved by jeweller and carver alike.

When fei cuì first entered China in quantity in the early 1700s, the Middle Kingdom was quickly enraptured, a love affair that continues to this day.. This modern example from Master Zhuang Qingfang shows exactly why this gem captured Chinese hearts. Photo: Zhuangjia fei cuì.

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Throughout this guide, the term 'fei cui is used to indicate pyroxene jade rocks while 'nephrite' is used for amphibole jade rocks. 'Jade' is used in the non-Chinese sense, while 'yu' is used in the Chinese sense.

1 Definitions

Actinolite: a monoclinic amphibole mineral with the chemical formula $Ca_2(Mg4_{.5–2.5}Fe\ 0_{.5–2.5})Si_8O_{22}(OH)_2$.

Achromatic colour: neutral colour without hue – such as white, black, or any shade of grey

Aggregate (Rock): a mass or body of rock particles, mineral grains, or a mixture of both.

Albitite: a mineral aggregate that predominantly consists of albite from the feldspar group

Amphibole: The amphibole supergroup is a group of rock-forming silicates that, in the field, have a similar appearance, see Appendix D and (Hawthorne 2012).

Breakage: fracture/cleavage formation and fragmentation, due to external forces, such as impact or compression.

Clarity: the presence /absence of internal or external features and their type, size, quantity and location that affect the overall appearance and/or durability of fei cui / jade.

Cleavage: the tendency of a crystalline substance to split into fragments bounded by plane surfaces.

Colour: characteristic of visual perception that can be described by attributes of hue, brightness (or lightness) and colourfulness (or saturation or chroma).
(CIE S 017:2020 ILV, International Lighting Vocabulary, 2nd edition, entry 17-22-040).

Craftmanship: craftsmanship is the expert skill, artistry, and meticulous care in creating objects, blending technical mastery with aesthetic understanding to produce high-quality, often unique, tangible items like handmade pottery, jewelry, or textiles, distinct from mass-produced goods or purely conceptual art. It signifies deep knowledge of materials and tools, applied with passion and precision to create something functional and beautiful, reflecting the maker's commitment to excellence and the user's experience.

Chromatic colour: any colour that is not neutral (not grey, white, or black) — in other words, a colour that is perceived as red, yellow, green, blue, or somewhere in between.

Dushan (Tushan) Yu: a aggregate composed primarily of plagioclase and zoisite, with accessory minerals including chromian muscovite and actinolite. It typically exhibits white, green, pink, purple, blue-green, yellow, and black.

Fei Cui (翡翠): an historic Chinese name (pronounced *fay choy*) for a structurally tough ornamental aggregate composed solely or principally of any of the following or any combination of the following jadeite, omphacite, and kosmochlor, forming jadeite jade/Jadeite fei cui, omphacite jade/omphacite fei cui or kosmochlor jade/kosmochlor fei cui[1], and potentially a small amount of other minerals.

Fracture: the property of a mineral, aggregate, rock or other materials, breaking in a more or less random pattern with no smooth planar surfaces, not a cleavage.

Fragmentation: a sand-sized particle or sand grain that is made up of multiple grains that are connected on the grain scale.

Hetian Yu (和田玉): pronounced huh tyan yoo, gem-quality nephrite jade in China's gemmology.

Hue: The aspect of colour that indicates whether it is perceived as red, yellow, green, blue, or somewhere in between on the colour circle.

Imitation: artificial products that imitate the appearance of natural materials without having their chemical composition or their physical properties or their structure.

Imperial jade: trade name applied to gem-quality translucent emerald-green fei cui

Jade: a traditional western term for a structurally tough mineral aggregate/rock that predominately consists of jadeite or nephrite only[2].

Jadeite: a monoclinic pyroxene mineral with the ideal chemical formula is $NaAlSi_2O_6$.

Jadeite jade/Jadeite Fei Cui: a structurally tough mineral aggregate that predominately consists of jadeite[3].

Jadeitite: A rock composed principally of jadeite ($NaAlSi_2O_6$), occurs either as individual tectonic blocks or as pods, lenses or veins in other blocks within serpentine or serpentine-matrix (L. Zhao, Ma, H., Fangy, C., Ding, L., Liu, B., Jia, X. 2019).

Kosmochlor: a monoclinic pyroxene mineral with the ideal chemical formula $NaCrSi_2O_6$.

[1] It should be noted while some gemmological laboratories give results that indicate jadeite jade/jadeite fei cui, "omphacite jade/omphacite fei cui"" and/or "kosmochlor jade/kosmochlor fei cui" there are some cases, either through market preference or technical challenges in reaching such a conclusion, where laboratories opt for using "fei cui" as a all-encompassing test result. (See appendix H)

[2] The term jade is restricted for use with jadeite jade or nephrite jade only it shall not be used in conjunction with any other yu.

[3] It should be noted that while some gemmological laboratories give results that indicate "jadeite jade/jadeite fei cui", there are some cases, either through market preference or technical challenges in reaching such a conclusion, where laboratories opt for using "fei cui" as an all-encompassing test result. (See appendix H)

Kosmochlor jade/kosmochlor Fei Cui: a mineral aggregate that predominately consists of kosmochlor [4].

Maw-sit-sit: an ornamental rock composed of kosmochlor, chromian jadeite, albite feldspar and amphibole group minerals.

Mutton fat jade: trade name applied to translucent pure white nephrite jade with greasy lustre and without visible associated minerals; traditionally found near Hetian, Xinjiang, China.

Misnomer: a name that is incorrectly or unsuitably applied.

Natural: materials that are completely formed by nature, without human intervention during their formation that may subsequently by modified by normal lapidary processes or which are altered by a treatment.

Nephrite: a rock composed of the amphibole group minerals actinolite and tremolite and is an interlocking mass of fibrous crystals.

Nephrite jade: predominately consists of nephrite.

Omphacite: an intermediate monoclinic pyroxene mineral of the jadeite-diopside series with an ideal chemical formula of (Na, Ca) (Al, Mg, Fe) Si_2O_6.

Omphacite jade/Omphacite Fei Cui: a mineral aggregate that predominately consists of omphacite[5].

Pyroxene: a supergroup of minerals that includes the three major constituents of fei cui, namely jadeite, omphacite and kosmochlor see appendix D and (N. Morimoto, Fabries, J., Ferguson, A.K., Ginzburg, I.V., Ross, M., Seifert, F.A., Zussman, J., Aoki, K., Gottardi, G. 1988b).

Saturation: saturation is how strongly a colour is perceived to differ from an achromatic colour of the same lightness — in other words, how “intense” or “washed-out” the colour appears.

Synthetic: artificial products having essentially the same chemical composition, physical properties and structure as that of their naturally occurring counterparts.

Texture: the collective set of characteristics including size, shape, uniformity and interrelationships of mineral grains or fabric within a rock or mineral

[4] It should be noted that while some gemmological laboratories give results that indicate “kosmochlor jade/kosmochlor fei cui” there are some cases, either through market preference or technical challenges in reaching such a conclusion, where laboratories opt for using “fei cui” as an all-encompassing test result. .S.F. Mcclure, 'The Jadeite/Omphacite Nomenclature Question', ' *Gems and Gemology,* (2012). (see Appendix H)

[5] It should be noted while some gemmological laboratories give results that indicate “omphacite jade/omphacite fei cui”” there are some cases, either through market preference or technical challenges in reaching such a conclusion, where laboratories opt for using “fei cui” as a all-encompassing test result. (See appendix H)

Tone: a grey scale value is described numerically where 0 is black and 255 is white. In between, every other number is a shade of Gray ranging from black to white.

Tough or Toughness: resistance to breakage.

Treated: material that has been treated by ways other than normal lapidary practices to change their appearance and/or durability.

Tremolite: a monoclinic amphibole mineral with the chemical formula $Ca_2Mg_5(Si_8O_{22})(OH)_2$.

Turkiyenite: a purple mineral aggregate from Turkey composed primarly of jadeite jade and associated with quartz, orthoclase, epidote, chloritoid and phlogopite (Digennaro et al. 1997; Hatipoglu et al. 2012; Hatipoğlu and Başevirgen 2012).

Workmanship: the technical skill, care, and precision used in making an object, representing the quality of the execution and the artist's proficiency, separate from the concept or design, focusing on the physical "how" a piece is made, from intricate carvings to smooth finishes, embodying the quality imparted during creation. It's the demonstration of skill that elevates a functional item into an artistic expression, highlighting expertise and attention to detail in handcrafted works.

Yu (玉): a Chinese gemmological term (pronounced yoo) broadly referring to any mineral aggregate that is beautiful, rare, durable, tough, and can be crafted.

Zhong (种): Chinese trade term for the texture and transparency of fei cui.

'Blue water' Burmese fei cui carved by Zhuang Qingfang. Photo: Zhuangjia Fei Cui; 202.15 ct; 68.5 × 38.4 × 9.8 mm.

2 Background

CIBJO's status on the Economic and Social Council of the United Nations (ECOSOC) enables it to represent the jewellery industry and present its strategy and objectives in support of the UN development goals. CIBJO's strategy in this respect is multi-layered. It serves to protect its constituents from factors that threaten the confidence of consumers in the jewellery industry, as well as factors that threaten the confidence of consumers in the jewellery product itself, and at the same time promote the jewellery industry, which creates sustainable economic and social opportunity in the countries and regions in which it is active.

The harmonisation of industry standards is a critical element of CIBJO's mission and stands at the heart of its effort to protect the confidence of consumers in the jewellery product itself. To advance the goal of universal standards and terminology in the jewellery industry, CIBJO developed its "Blue Book" system, which involves a definitive set of standards for the grading, methodology and nomenclature of diamonds, coloured gemstones, pearls and other organic materials, precious metals and gemmological laboratories.

3 Understanding Fei Cui (翡翠), Jade, Jadeite Jade, Nephrite Jade, and Yu (玉）

Jade is a traditional Western term that encompasses only two types of minerals: jadeite and nephrite. These minerals share a similar visual appeal and cultural significance, but differ significantly in mineral composition and structure. Jadeite is a pyroxene mineral with the formula $NaAlSi_2O_6$, while nephrite is an aggregate of amphibole minerals, primarily actinolite and tremolite. Whereas, fei cui (翡翠), pronounced *fay choy*, is a historical Chinese term/name referring to a structurally tough ornamental aggregate composed principally of jadeite, omphacite, and kosmochlor, or any combination of these minerals. It is distinguished by its durability and appearance, and has long been prized in Chinese culture for use in various ornamental and decorative objects. See page 17 for a graphic representation.

Fei Cui carries deep cultural significance, with designs often incorporating auspicious meanings and traditional aesthetics. This makes it more than just an ornament—it becomes a symbol of cultural heritage. Common motifs in fei cui carvings, such as "Fu Lu Shou"[6] (symbolising fortune, prosperity, and longevity) and "Ping An Kou"[7] (peace buckle), embody profound cultural connotations.

This cultural value not only enhances fei cui's artistic appeal but also increases its market desirability. Additionally, modern fei cui continues to evolve, blending Eastern and Western aesthetics. By preserving traditional cultural essence while catering to contemporary consumer tastes, it strikes a perfect balance between heritage and innovation.

Jadeite jade/fei cui is the rarer, characterized by its hardness, toughness, fine texture, and vibrant colours. Its potential high value is due to its translucency and pureness, often making it more sought after in fine jewelry.(C. M. Ouyang, '翡翠全集 (Complete Collection of Fei Cui)' [in Chinese], 2000)

Nephrite jade is composed of fibrous crystals interlocking in a compact structure, making it even tougher than jadeite jade/fei cui. Nephrite jade/Hetian yu can range in colour from creamy white (known as "mutton fat jade") to various shades of green. It has been traditionally used in China and other cultures for utilitarian and ceremonial objects, as well as jewellery.

Yu is a broader term used in Chinese gemmology. It encompasses any mineral aggregate that are fabricated, appealing in appearance, durable, tough, and sometimes valued for the craftsmanship used in manufacture. Yu can include materials that are not

[6] Pronunciation: fu lu shou. Simplified Chinese: 福禄寿 Traditional Chinese: 福祿壽 Pinyin: fú lù shòu. A traditional Chinese expression symbolising good fortune, prosperity, and longevity, commonly represented in decorative arts and jewellery motifs.

[7] ping an kou Pronunciation: /pɪŋ æn koʊ/ Simplified and Traditional Chinese: 平安扣, Pinyin: píng ān kòu. traditional Chinese circular yu ornament with a central hole, symbolizing peace and protection, commonly worn as a pendant.

necessarily classified as jade in the Western sense, and may also be used for objects of high cultural and artistic value.

Important;

- Fei cui does not inherently denote quality as both high and low-quality variants exist.
- Descriptions for treated or artificial materials should align with those of other gem materials, i.e., all artificial materials should be clearly described, all treatments should be clearly stated in any descriptions,
- Chinese trade names are listed and described in Appendix A. While this listing primarily applies to the Chinese market some may also be prevalent in Western terminology, when this is the case these names are followed by an asterisk thus (*).
- 'Yu' and 'Jade' are not specific gemstone varieties. Therefore, expressions such as 'B-jade/Yu,' 'natural jade/Yu,' or 'Guatemalan jade/Yu' should be avoided in normative documents.

4 Nomenclature of Fei Cui (翡翠), Jade, Jadeite, Nephrite, and Yu (玉) in Chinese National Standards.

1993 – The first edition of China's national standard Gems—Nomenclature included the Chinese term "玉", the Chinese name "翡翠", the English terms/names jade, jadeite and nephrite, with jade designated as the English equivalent of "玉".

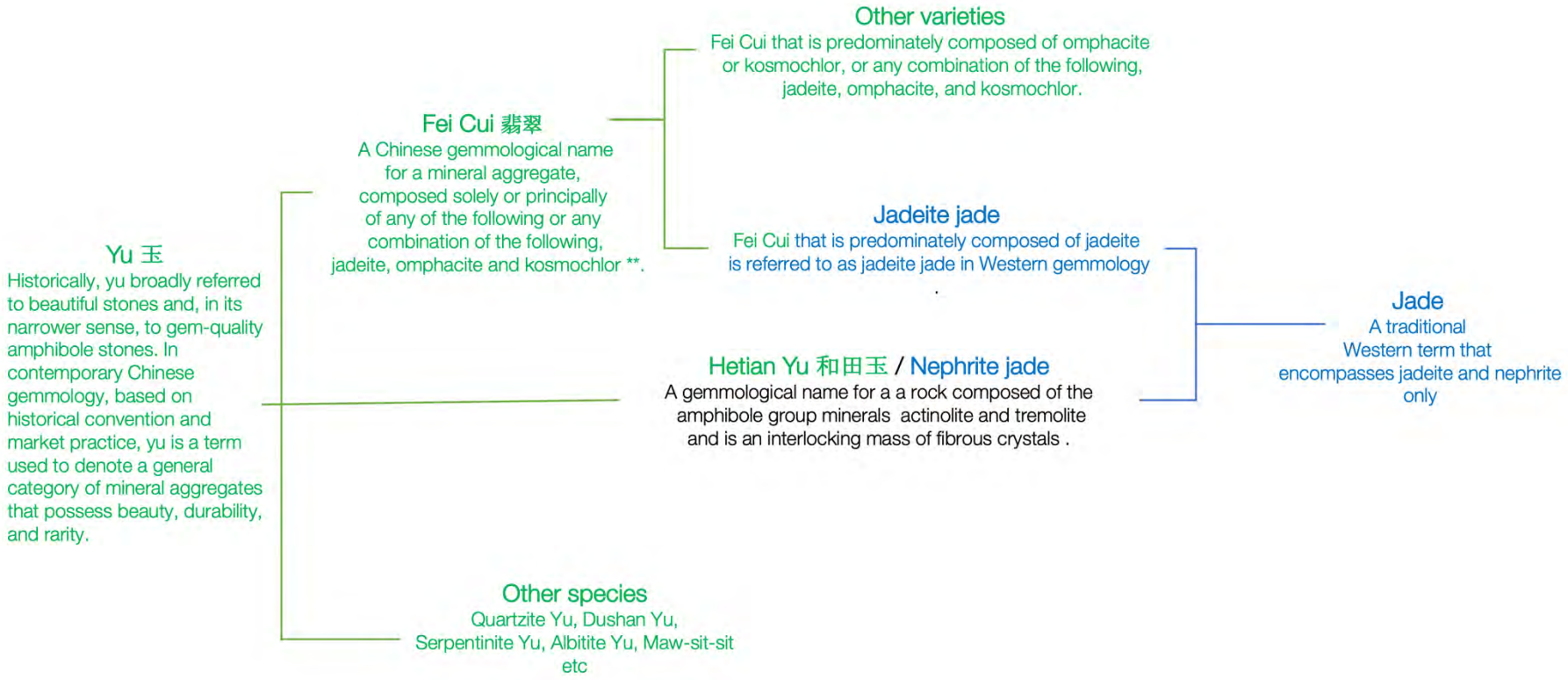
2003 –The revised edition of China's national standard Gems—Nomenclature introduced the Chinese name "和田玉" and incorporated the transliterated Chinese names fei cui (翡翠) and Hetian yu (和田玉) into the English nomenclature.

Note: Unless otherwise specified, "jade" cited from Chinese archaeological, gemmological, and historical sources in this Guide represents the Chinese term yu (玉). Owing to differences in historical context, cultural tradition, and nomenclatural conventions, the English term "jade" has often been used as the equivalent of yu rather than the modern mineralogical names jadeite or nephrite.

Note: At present, Chinese archaeological and gemmological studies generally recognize this discovery as among the earliest known evidence for the use of yu. A fragment of a dark-green chloritolite bracelet was recovered from the upper part of Stratum 11 in the Early Upper Paleolithic deposits of Denisova Cave, Altai, and has been dated to approximately 48,650 +2,380/–1,840 BP to 29,200 ± 360 BP (A. P. 2008)

Jade / Fei cui (翡翠) integrated relationship chart

The following flow chart provides a perspective on the terminology and classification systems that generally exist between the Chinese Yu culture and non-Chinese jade cultures (see Section 3). In this chart, green text represents terminology and concepts rooted in Chinese gemmological and cultural contexts, while blue text reflects terms and classifications rooted in traditional Western gemmology, See section 3.



(A. Damour 1845; A. Damour 1846, 1863; GAHK 2016; GIT 2022; NGTC 2017)

5 Nomenclature, an Historical Timeline

The following condensed historical timeline of jade and jade-like materials nomenclature, is adapted from (Hughes 2022) with further input from NGTC demonstrating how this categorization has changed over the centuries as knowledge has changed and adapted.

Before Common Era (BCE)			
Period	Event	Period	Event
36–35,000	Nephrite axes are found in Upper Palaeolithic sites in Japan. This is the earliest documented use of jade (Tsutsumi 2012)	3800–2700	Hongshan yu culture appears in China's Liaoning Province.
22,000	Jade is worked in the Lake Baikal region of Russia (Komissarov 1998).	3,300-2,300	The Liangzhu Culture, distributed across the Jiangsu and Zhejiang regions of China, widely produced cong (琮: hollow cylinder with rectangular sides) and bi (璧) (Wu 2025; Zhu 2022).
8000–7000	Amphibole jade (nephrite) is first worked in China (Nanjing-Museum 2023) At some point, the Chinese label the stone yu (玉). The character is one of the oldest in the Chinese script, and only slightly modified from the character for 'king' (王), signifying its importance	3000–1200	Sanxingdui yu culture appears in China's Sichuan Province.
		2,200 1,600	The Qijia Yu Culture was influenced by the Hongshan and Liangzhu yu traditions and, in turn, influenced the Sanxingdui Culture. Its yu artefacts were mainly produced from locally sourced yu in Gansu Province and Hetian yu (nephrite jade) from Xinjiang (Peng 2008).
7,100-6,600	The Xiaonanshan Yu Culture in present-day Heilongjiang, northeastern China, represented by over 200 excavated yu artefacts (Z. Zhao 2025)	2,200 1,600	The Qijia Yu Culture was influenced by the Hongshan and Liangzhu yu traditions and, in turn, influenced the Sanxingdui Culture. Its yu artefacts were mainly produced from locally sourced yu in Gansu Province and Hetian yu (nephrite jade) from Xinjiang (Peng 2008). Qijia yù culture appears in China's Gansu Province.
6,200	Xinglongwa yu jade culture develops in Inner Mongolia.		
6300-5050	The Daxi Culture of the Three Gorges region in the middle reaches of the Yangtze River demonstrated diverse yu and stone artefact materials (Jiujiang Bai 2026).	1800	Pyroxene jade is worked by the Olmecs in Central America (Hughes 2022). The gem later becomes known to the natives as chalchihuitl.
6,200 5,200	The Xinglongwa Culture in present-day Inner Mongolia, China, represented by more than 60 excavated yu artefacts (Guoxiang Liu 2005; Z. Sun 2026)	1250	The Maori discover and begin working amphibole jade (pounamu) in New Zealand.
6000	Pyroxene jade (today locally termed hi sui) is worked in Japan	1,100 1,050	The Sanxingdui Culture in southwestern China produced yu artefacts for ritual, ceremonial, utilitarian, and ornamental purposes. These artefacts were primarily made of amphibole, serpentinite, obsidian, diopside, quartzite, and other materials (Hao Lu 2021; He 2006; Qian Xiao 2023)
4,500-3,000	The Hongshan Culture, distributed across western Liaoning, southeastern Inner Mongolia, and northern Hebei, China, covered approximately 200,000 square kilometres and influenced the contemporaneous Lingjiatan, Liangzhu, and Yangshao cultures (Rihan Da 2025; Zhu 2022)	1,100 1,050	The Sanxingdui Culture in southwestern China produced yu artefacts for ritual, ceremonial, utilitarian, and ornamental purposes. These artefacts were primarily made of amphibole, serpentinite, obsidian, diopside, quartzite, and other materials (Hao Lu 2021; He 2006; Qian Xiao 2023)
3,800-3,300	The Lingjiatan Culture, located in the middle and lower reaches of the Yangtze River. More than 1,000 yu artefacts have been excavated (Wu 2025; Zhu 2022)	200	Nephrite (yu) from Khotan (Hétián) in what is now Xinjiang U.A.R. is traded with eastern China

Common Era (CE)			
Period	Event	Period	Event
200–800	The Pyu city-state of Sri Ksetra (Hmawza) develops in Myanmar. Excavations from this site reveal fei cui ornaments and carved elephants (Duroiselle 1930)	1863	Damour identifies fei cuì as a mineral and names it 'jadeite' (A. Damour 1863).
11th Cent	The term fei cuì as applied to jade makes its first appearance in China (Bishop 1906).	1880	Heinrich Fischer publishes Nephrit und Jadeit, summarising virtually all the Western knowledge on jade up to that date (Fischer 1875).
1250–1350	Polynesians settle New Zealand, discovering a type of jade (nephrite/serpentine) that they term pounamu ("greenstone").	1897	Laspeyres first describes kosmochlor (Laspeyres 1897).
1518–19	Spaniards led by Juan de Grijalva begin to explore the gulf coast of present-day Mexico. They are the first Europeans to encounter jade in the New World.	1930	Lacroix correctly describes fei cui from Myanmar as a rock, terming it jadeitite).(Lacroix 1930)
1647	De Laet suggests that lapis nephriticus is different from jasper, but yu continues to be called jasper by many European writers.	1978	The IMA depreciates nephrite as a mineral species, recognising that it is a rock composed mainly of actinolite (Leake 1978; Nickel 1987).
1719	The term fei cuì is first applied to pyroxene jade from Myanmar (L. Sun 2011).	1979	Manson identifies ureyite (kosmochlor) in maw-sit-sit from Myanmar (Manson 1979)
1774	Abraham Gottlob Werner publishes Von den äusserlichen Kennzeichen der Fossilien where lapis nephriticus is shortened to nephrit (Werner 1774). This is the first known use of the term nephrite.	1984	Ureyite (kosmochlor) is also identified in fei cui from Myanmar (C. M. Ouyang 1984).
1784	Hostilities between China and Burma end. For the first time fei cui from Myanmar begins to enter China in quantity (Hertz 1912). .	1988	The IMA formally discredited ureyite as a duplicate name of kosmochlor.
1789	'Tremolite' is coined by Johann Georg Albrecht Höpfner ((Höpfner 1789; Roth 2006).	1998	Omphacite is first identified in fei cuì (Zheng 1998).
1801	Haüy creates the word amphibole to replace hornblende.(Haüy 1801)	2015	VPSEM-Raman coupled study of fei cuì demonstrates that the integration of omphacite and kosmochlor crystals with jadeite is much tighter than previously understood. (S. I. Liu, Ouyang, C.M., Ng, F.Y. 2015).
1812–15	Omphazit (omphacite) is first described by Hoffmann (Hoffmann 1815)	2016	Hong Kong adopts nomenclature that uses fei cuì for the rock that is pyroxene jade, dropping the incorrectly used species names of jadeite, omphacite and kosmochlor (GAHK 2016)
1843	Schaffhäutl publishes the first accurate analyses of nephrite (Schaffhäutl 1843).		

Lavender fei cuì carving by Master Zhuang Qingfang •

Lianxiang, a hetian yu (nephrite) carving from Master Yang Xi.

6 Classification

In gemmology, and in line with cultural and trade conventions, fei cui is often classified according to its colour, texture and transparency (zhong, 种).

6.1 Colour

Fei cui is a colour-rich gemstone that exhibits nearly the full range of colours perceived by the human eye, including both achromatic hues and chromatic hues. fei cui is commonly classified into colourless-white fei cui, green fei cui, purple fei cui, red–yellow fei cui, blue fei cui, and black fei cui.

Chromatic colours of fei cui

Achromatic colours of fei cui

Courtesy of NGTC

Upper line, Colour-rich fei cui carvings of the Five Dhyani Buddhas by master carver Jia Long, Centre, multi coloured fei cui carving. Lower left, a fei cui pendant featuring the trade colour term "Imperial Green" (帝王绿) (image On Tung) and lower right a purple fei cui bangle that is described as lavender jadeite jade

Courtesy of NGTC

In the Chinese market, trade related colour terms play a key role in the classification and pricing of fei cui, Expressions such as "imperial Green" (帝王绿) and "Purple" (紫罗兰) or lavender are widely used to describe qualities, blending visual appeal with market tradition. See appendix A – Chinese Trade Names for Fei Cu)

Although these trade colour terms are not yet fully standardised, they are broadly understood within the trade. Continued efforts in lab practices and market education are gradually supporting more consistent interpretation, helping to reinforce buyer confidence and market transparency.

A very nice example of lavender fei cui, Image Courtesy Stanley Chu of On Tung Jewellery Co. Ltd

6.2 Transparency and Texture (ZHONG 种)

In addition to its rich colors, another crucial factor behind the enduring appeal of fei cui is its transparency and texture (In Chinese trade, this is referred to as ZhongShui (**种水**), often abbreviated simply as Zhong (**种**)), which together impart a sense of 'vitality.' Zhong represents the combined expression of texture and translucency, and is commonly classified, from high to low quality, into types such as 'Glassy Zhong' (**玻璃种**), 'Icy Zhong' (**冰种**), 'Sticky-Rice Zhong' (**糯种**), and 'Pea Zhong' (**豆种**). Further details are provided in Appendix A. These distinctions directly determine the beauty and value of fei cui.

A fei cui necklace and earring set featuring the trade term "Glassy Zhong" (玻璃种) and a fei cui bangle featuring the trade term "Icy Zhong" (冰种). . Courtesy of the Beijing Boguan International Auction Co., Ltd

6.3 Evaluation

Fei cui is usually evaluated based on its color, transparency, texture, clarity, and craftsmanship. It is necessary to comprehensively consider these factors for evaluation (Beili 2013. ; China 2009). The sample images used in this section are provided by NGTC.

6.3.1 Colour

Colour of fei cui can be measured using the attributes hue, saturation and tone. The distribution of colour is an additional important attribute of fei cui.

In this Guide, green fei cui will serve as a reference for evaluating other colours.

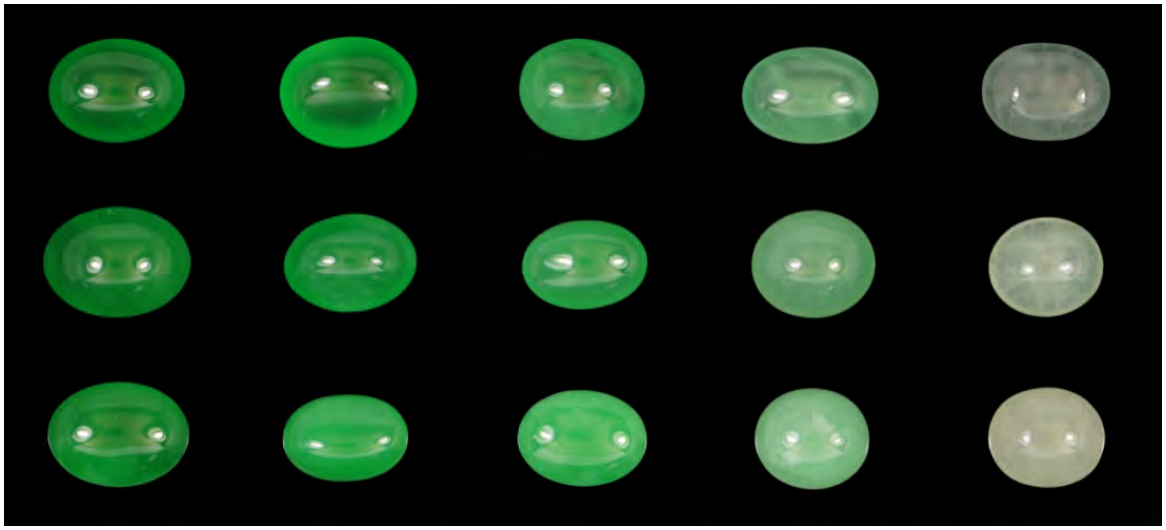
6.3.2 Hue

Hue refers to the dominant colour of fei cui, serving as its distinctive primary characteristic among chromatic colours.

Yellowish Green Green Bluish Green

6.3.3 Saturation

Saturation refers to the strength or weakness of the colour.



High low

6.3.4 Tone

Tone refers to the lightness or darkness of any colour of fei cui (see definitions).

Light Dark

6.3.5 Transparency

Transparency refers to the degree to which fei cui allows visible light to pass. It is assessed by the level of difficulty to observe objects that are placed behind a fei cui. The transparency of fei cui is determined by various factors, such as its mineral composition, texture, colour and clarity. The thickness and polishing quality of the sample may also affect its transparency.

Transparent Semi-transparent Translucent Semi-translucent Opaque

6.3.6 Texture

Texture refers to the complex characteristics of fei cui including size, shape, distribution and inter-grain relationship and other factors of the mineral grains that constitute the fei cui.

Extra Fine Fine Relatively Fine Relatively Coarse Coarse

6.3.7 Distribution

Colour distribution in fei cui ranges from even to uneven and may appear in flocculent patterns, spots, threads, veins, nets, or patches.

Even

Patched

Full colour

Spotted

Netted

Threaded

Veined

Patched

6.3.8 Clarity

Clarity refers to the presence of internal and external features and their type, size, quantity and location that affect the overall beauty and/or durability of fei cui.

Spotty

Spotty minerals/features in fei cui, which can appear white, off-white, yellow, brown, or black.

Flocculent

Pollen, Cotton or silk-like minerals/features in fei cui, which can appear white, off-white, brown, or black.

Fissures and Breakages

The cracks that occur when the continuity and/or integrity of the Fei Cui aggregate are damaged

Graining

The grain is the general trend of the orientation of the crystals in the fei cui aggregate

Notch

Small damaged openings on the surface of Fei Cui

Clarity grade		Description
Extremely clean	▷	The internal and external characteristics are imperceptible and barely visible to the unaided eye, slightly affect the overall aesthetics
Clean	▷	The internal and external characteristics are visible to the unaided eye, affect the overall aesthetics
Relatively Clean	▷	The internal and external characteristics are obvious to the unaided eye, affect the overall aesthetics and/or durability to a certain extent.
Fair	▷	The internal and external characteristics are very obvious to the unaided eye, greatly affect the overall aesthetics and/or durability

6.3.10 Weight and Measurement

Fei cui is not priced on weight alone. However, the weight and measurements of fei cui rough and finished products are often recorded because weight and measurements are important factors in determining the value.

6.3.11 Recording the weight of Fei Cui:

The weight of fei cui is typically recorded in carats (ct), grams (g) or kilograms (kg).

6.3.12 Recording the measurement of Fei Cui:

The measurement of fei cui is usually measured and recorded in millimetres, and occasionally in centimetres.

The impact of weight and measurement on the value of fei cui: Under the condition that the quality of fei cui (colour, transparency, texture, clarity, and even craftsmanship or product shape) is the same or similar, the larger the weight and measurement of the fei cui product, the higher its value.

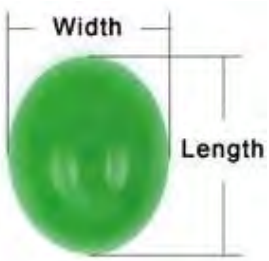
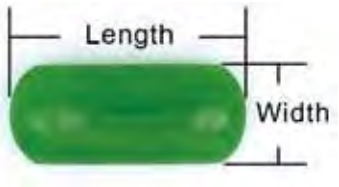
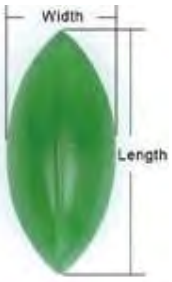
The higher the quality of fei cui, the greater the impact of weight and measurement on its overall value.

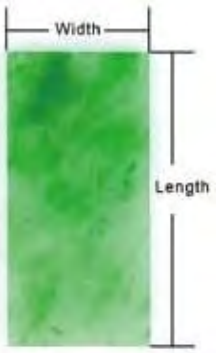
6.4 Craftmanship

The evaluation of craftsmanship in fei cui finished products can be considered from three main aspects: material application, design, and processing techniques. Material application starts with understanding fei cui and leveraging its inherent characteristics, with evaluation considering its overall quality, form, colour, transparency, texture, and clarity to reveal natural beauty and enhance value. Design directs material and transforms form into meaning, with evaluation focusing on form, composition, theme, artistic conception, and symbolism as an integrated system shaping both visual expression and interpretation. Processing techniques, including carving (forming) and polishing (finishing), reflect the principle that value lies more in workmanship than material, with evaluation focusing on how they transform material potential into the final expression. A fine fei cui finished product is characterised by proper material selection, harmonious proportions, elegant form, and fine workmanship. Artisans shall take into account the stone's texture and colour distribution to ensure that the design is consistent with its natural characteristics, a principle known as 'tailored artistry'.

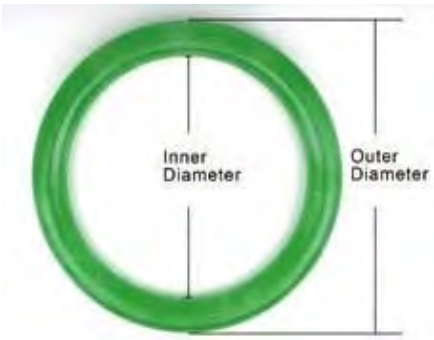
See APPENDIX F – Craftmanship. for an expansion of this important element

6.5 Guidelines for measuring different shapes and forms of Fei Cui, Jade, Jadeite Jade, Nephrite Jade, and Yu.

Shape & Cut	English Name	Measurement
	Oval Shape Cabochon	Length x Width x Thickness
	Saddle Top	Length x Width x Thickness
	Round Disc	The Longest Outer Diameter x Thickness
	Marquise Shape Cabochon	Length x Width x Thickness



Rectangular Shape Plaque	Length x Width x Thickness



Round Bangle	The Longest Outer Diameter x The Longest Inner Diameter x Width

Bead	The Longest Diameter

Buddha	Length x Width x Thickness

Source: Standard Methods for Testing fei cui for Hong Kong HKSM/FCT-2016, The Gemmological Association of Hong Kong Limited (GAHK 2016).

6.6 Jadeite jade / Fei Cui Artificial Products

6.6.1 Synthetic jadeite jade

Synthetic jadeite jade (Cao et al. 2008; Nassau and Shigley 1987; Pough 1985; F. B. Wang, Li, Y., Chen,N., Jia, X.P., Ma, H.A. 2014; Wei et al. 2004) has been produced experimentally and was available as a research sample. It is primarily composed of polycrystalline aggregates of synthetic jadeite jade. The High-Temperature and High-Pressure (HTHP) method is the prevailing technique for synthetic jadeite jade (synthetic fei cui). Under certain conditions, the precursor materials undergo phase transformations and melting, eventually crystallizing into synthetic jadeite jade. Experimentally various colours have been created (L. Zhao, Maa, H., Fangb,C., Dinga, L., Jiaa, X. 2018; L. Zhao, Ma, H., Fangy, C., Ding, L., Liu, B., Jia, X. 2019).

While synthetic jadeite jade (synthetic fei cui) is produced via the HTHP method, and has a chemical composition nearly identical to that of natural jadeite jade (fei cui), there are notable differences in appearance and certain spectroscopic characteristics that may be used in identification.

6.6.2 Pressed Jadeite jade/Fei Cui

Pressed jadeite jade/fei cui (Xiangjun 2002) is created by solidifying mechanically crushed natural jadeite/fei cui using adhesive agents, combined with compression or sintering techniques, often with added pigments. The adhesive agents are categorized into two types: organic resin binders and inorganic glass binders. Early pressed jadeite jade/fei cui primarily used resin binders, while more recent methods have adopted inorganic glass materials in the sintering process.

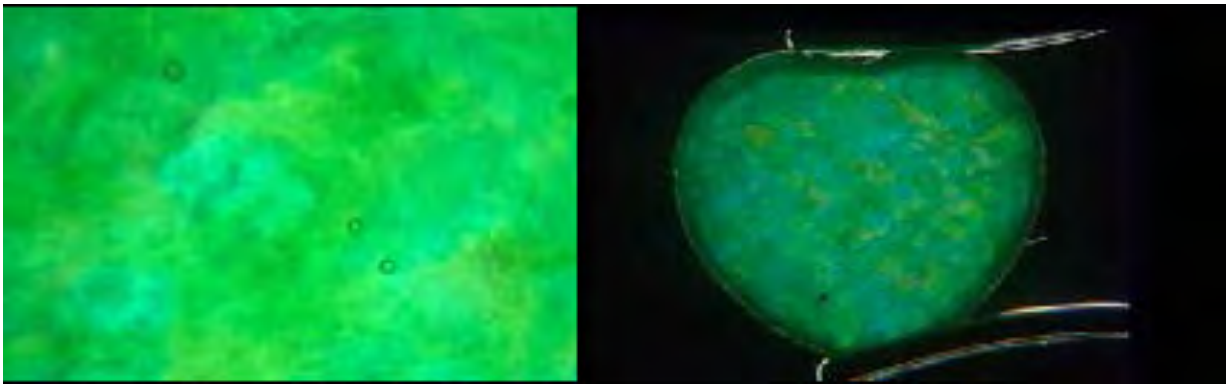
Courtesy of NGTC

Pressed jadeite jade, appearance and structure

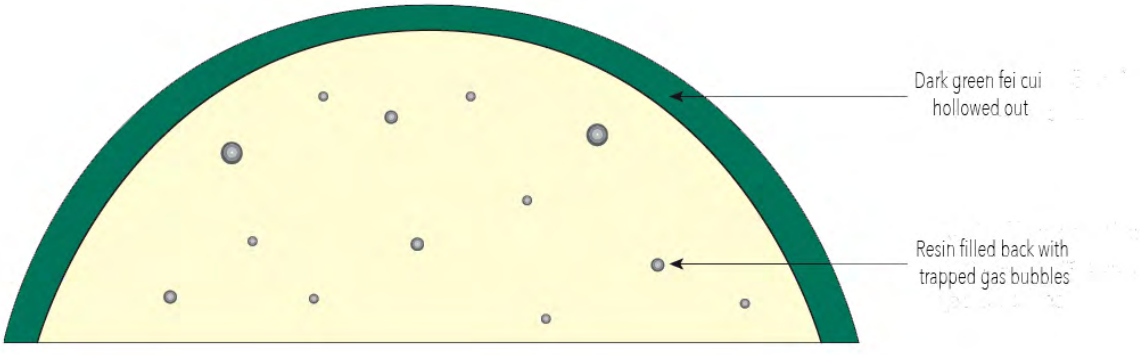
6.6.3 Composite imitations of fei cui

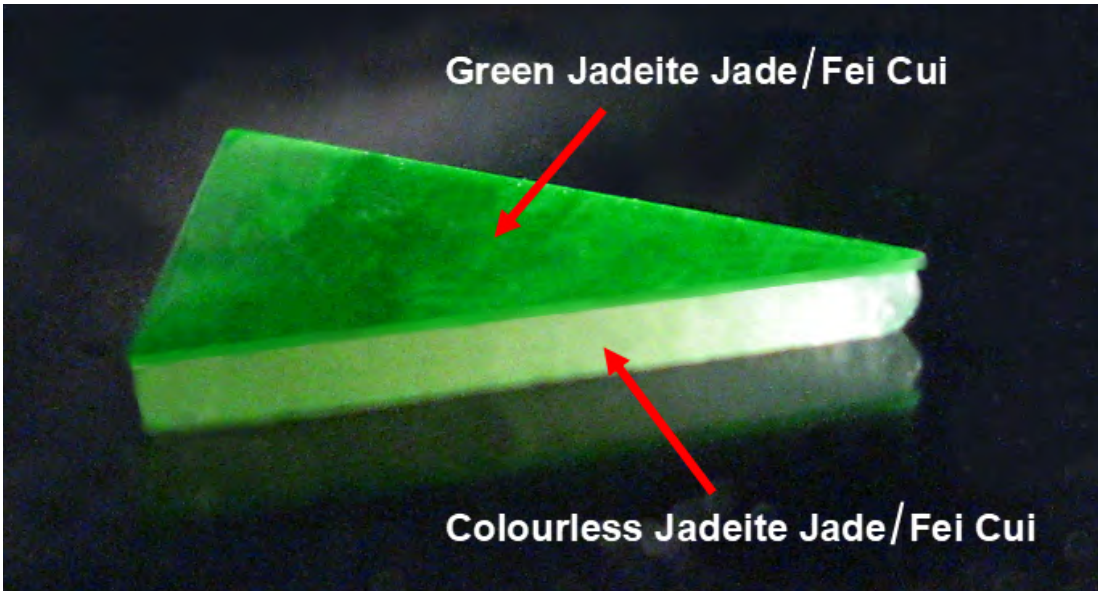
Composite imitations of fei cui refer to an artificial assembly of two or more pieces (doublets or triplets) of fei cui and bonding agents, designed to give the illusion of a single, intact piece. Such composites may be found in the trade and should be declared as such (CIBJO 2024).

Colourless fei cui may be combined with green artificial materials to imitate the appearance of high-quality fei cui (Crowningshield 1964). Another common method involves slicing dark green fei cui into thin layers and bonding them with colourless, transparent materials to enhance colour, brightness and translucency.



This heart-shaped jadeite jade cabochon (right) is actually hollowed out to near-eggshell thickness so that the colour appears bright and lively. To protect it, the back is filled in with resin. Such stones are normally bezel set with a closed backing to hide the fraud. Left: Round gas bubbles are visible in the resin backing under magnification. Photos Richard W. Hughes/Lotus Gemology.

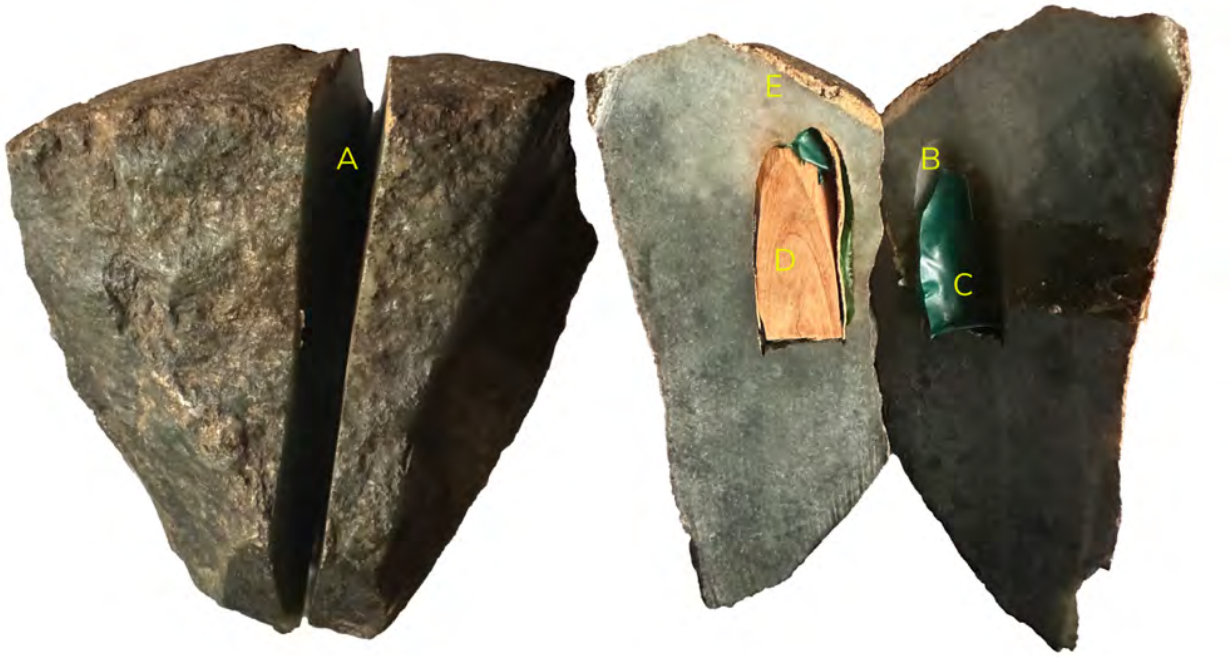




Jadeite jade / fei cui doublet image © Dr Edward Liu (MGI).

6.6.4 Counterfeiting rough stones

Occasionally a thin slice is cut from a colourless and low-quality rough fei cui, dyed green or infused with resin, and then reattached to its original position on the rough. The exterior of the rough is then soft-bonded with a mixture of quartz sand and adhesive agents to enhance the appearance of authenticity. Rough is also sometimes drilled, leaving a thin layer at the opposite end of the entry hole where the stone had previously had a window cut. The hole is then packed with wood and green cement, and carefully closed off with a mixture of sand/jade and glue to hide the entry hole. When complete, the “maw” (window) reveals a fine colour and better transparency.



A jadeite jade boulder which has been sawn through (A) to reveal an area that has been drilled out (B) lined with a green epoxy (C) and packed with wood (D) the drill hole being hidden by mixture of materials to resemble the naturel surface.

6.6.5 Imitations of Jadeite Jade/Fei Cui[8]

Imitations of jadeite jade/fei cui commonly found in the market are made from simple or devitrified glass, plastic, and resin. These imitations can exhibit a wide range of colours and levels of transparency.

Examples of imitation fei cui

6.7 Possible Treatments of Fei Cui / Jadeite Jade

With the continuous expansion of the jadeite jade/fei cui market and increasing consumer demand, treatment methods have been developed in the jadeite jade/fei cui industry. These methods can significantly impact the colour appearance, and transparency of the material, thereby giving the original material a more appealing appearance.

These methods may improve the appearance and/or the durability of the material However, they may also have an impact on perceived values, therefore, full disclosure of any applied treatments is crucial in ensuring that consumers and traders are fully informed.

In the fei cui trade in China, a standardised code system has been established to indicate whether a fei cui item has undergone any form of treatment. This declaration system is widely adopted and commonly used across the industry to inform and protect potential buyers.

- Untreated, natural jadeite jade/fei cui is described as Type A.
- Bleached and Impregnated jadeite jade/fei cui is described as Type B.
- Dyed jadeite jade/fei cui is described as Type C.
- Bleached, impregnated and dyed jadeite jade/fei cui is described as Type B+C

Courtesy of NGTC

[8] Some historic and contemporary texts suggest natural materials as “imitations” of fei cui and other gemstones, e.g., spinel as an imitation of ruby, however, this notion is not adopted by CIBJO as these materials are gems in their own right and should not be thought of as imitations of others.

The standardised code system commonly used to inform buyers in China of the natural or treated state of fei cui

Type of Fei Cui	Code	Definition
Natural fei ui (with/without waxing)	Type A (A貨)	Refers to natural fei cui that exhibits its natural colour and shows no evidence of impregnation. The application of colourless wax for surface enhancement is an accepted practice and may still be considered natural fei cui.
Bleached and Resin Impregnated fei cui	Type B (B貨)	Refers to fei cui, which has been bleached with strong acids and resin impregnated.
Dyed fei cui	Type C (C貨)	Refers to fei cui which has been treated with dye
Bleached, Resin Impregnated and Dyed fei cui	Type B+C (B+C貨)	Refers to fei cui which has been bleached with strong acids, resin impregnated and dyed.

It is the position of CIBJO that it is in the best interest and responsibility of the trade for consumers to be fully informed with regards to any treatments applied to jadeite jade/fei cui. Treatments may impact value, and are often not permanent or may require special care; the seller shall therefore inform the purchaser about the treatment and any special care requirements. The CIBJO Trade Code (as the name implies, these codes are for the trade only use on jewellery item 'coded tags' or "labels" and shall not be used with consumers) system to describe treatments indicated in the table below applies to all gemstones and not just fei cui.

The CIBJO Trade Codes that may apply to fei cui

CIBJO Trade Code	Treatment disclosure for the consumers
B	Bleached
C	Coated
D	Dyed
H	Heated
I	Impregnated
W	Waxed

6.7.1 Surface waxing

Jadeite jade/fei cui is cleaned using acids and neutralizing solutions, followed by boiling in water to remove any residue. Next, it is dipped in wax as part of the polishing process. The wax fills tiny fissures and pits on the surface of the jadeite jade/fei cui, giving it a more uniform and polished appearance. Should be disclosed as "waxed" with the CIBJO trade code "W".

6.7.2 Heating

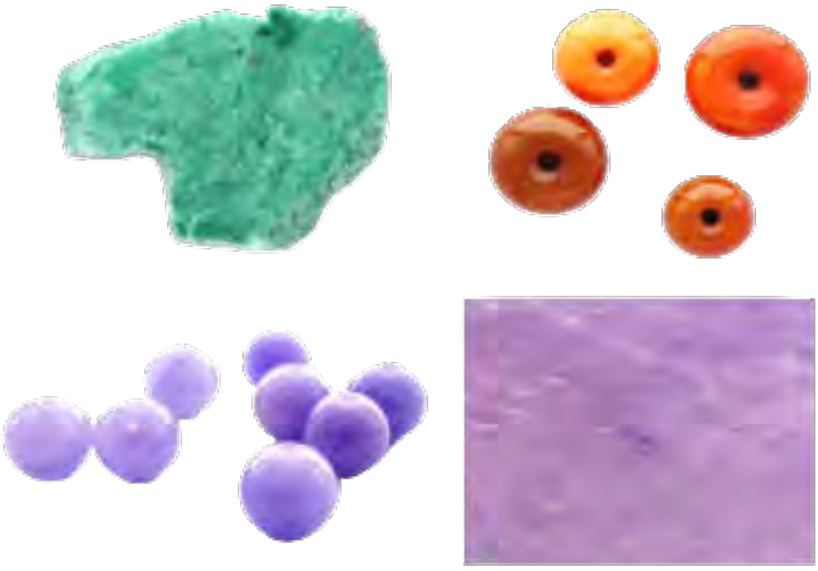
Heating is used to enhance the colour of jadeite jade/fei cui, especially in stones with a yellow or brown appearance. The process facilitates the oxidation of iron oxide impurities present between the jadeite and/or omphacite grains of fei cui, resulting in a vibrant reddish-brown colour. While heating can improve the uniformity of jadeite jade/fei cui's colour, excessive heat may cause fractures and compromise its structural integrity (Chen 2008). Should be disclosed as “heated” with the CIBJO trade code “H”.

Jadeite jade/fei cui after heating or even unheated is often dipped in liquid wax to improve the surface polish and appearance. Image shows heated Jadeite jade/fei cui in the foreground and immersed in liquid wax in the background.

6.7.3 Dyeing

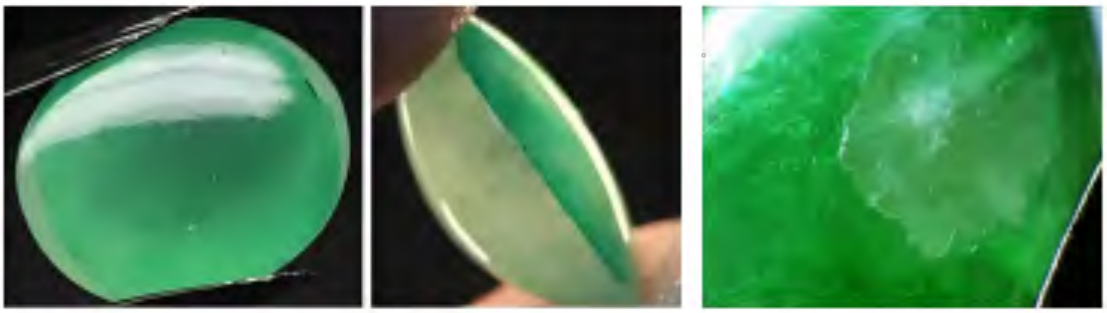
The colour of jadeite jade/fei cui can be altered by dyeing. Dyeing jadeite jade/fei cui may produce green, yellow, purple, or even multi-coloured appearances. However, the colour achieved through dyeing is unnatural and prone to fading with prolonged exposure to sunlight (Crowningshield 1963, 1965; Ehrmann 1958; Fryer 1983, 1984b, 1984a; Koivula 1982; Lu 2012; Yuan and Yan 2009). Should be disclosed as “dyed” with the CIBJO trade code “D”.

Courtesy of NGTC



Example of dyed jadeite jade/fei cui

6.7.4 Coating



Coating refers to the application of a thin film on the surface of jadeite jade/fei cui generally to give a greater lustre, improve colour saturation, or to conceal flaws. This film, typically made of synthetic materials, is applied using techniques such as spraying or impregnation (Crowningshield 1964; Yuan and Yan 2009). Should be disclosed as "coated" with the CIBJO trade code "C".

6.7.5 Surface Bleaching

Examples of jadeite jade/fei cui before and after surface bleaching, adapted images from NGTC

Courtesy of NGTC

Surface bleaching is used to remove tinted impurities in boundaries between the surface grains and cracks of jadeite jade & omphacite jade/fei cui. It is a mild treatment that does not significantly affect the structure or durability of the jadeite jade & omphacite jade/fei cui. Should be disclosed as “bleached” with the CIBJO trade code “B”.

6.7.6 Bleaching and Impregnation

Jadeite jade/fei cui is treated with strong acids to bleach out coloured impurities (brown, grey, or black colour) and improve its clarity by penetrating the stone’s internal structure. However, this process significantly compromises the structural integrity of fei cui, making it more porous, fragile, and susceptible to damage. As a result of the bleaching, the appearance of fei cui typically becomes opaque and chalky. Due to its weakened state and undesirable appearance, bleached fei cui with strong acids is rarely marketed. It is typically subjected to subsequent impregnation with colourless resins to fill the grain boundaries of fei cui and cracks, thereby restoring its durability and improving its transparency. Bleached and resin-impregnated fei cui usually appear more translucent after treatment. However, its structural integrity is compromised, resulting in reduced toughness over time. With age, the resin fillers may oxidise, becoming yellowed, brittle, or even detached, further diminishing the fei cui's durability and aesthetic appeal. (Fritsch et al. 1992; Fritsch et al. 1993; Gao and Zhang 1999; Kammerling and Fryer 1995; Li 2005; Mok 1993; Ou Yang 1993; Tay et al. 1993; F. Q. Wang 1993; Yu et al. 1996) Should be disclosed as “bleached and impregnated” with the CIBJO trade code “B,I.”.

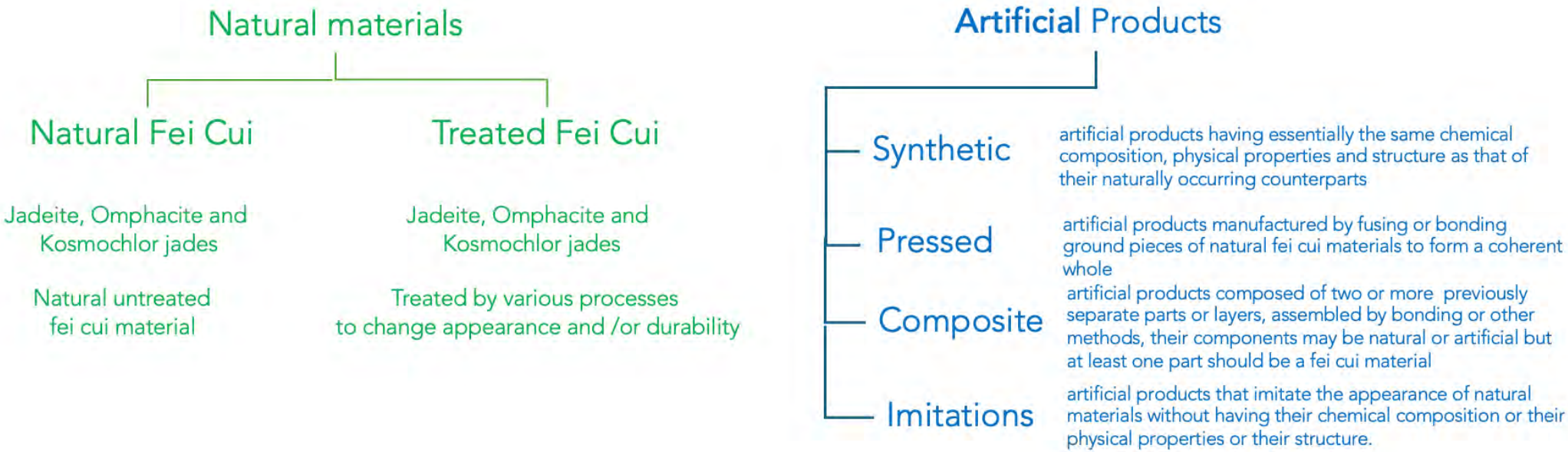
The bleaching, dyeing and impregnating of jadeite jade/fei cui; upper left (left to right) three images show before, during and after bleaching and polymer impregnation (Mayson Kay image) upper right two images bleached (left) and polymer impregnated (right) (Shane McClure image) centre left polymer impregnated bangle (Shane McClure image) centre right polymer impregnated and dyed bangle (Image SSEF) lower left painting bleached bangles (Mayson Kay image) and lower right a bleached, dyed and impregnated bangle (NGTC image).

6.7.7 Bleaching, Dyeing and Impregnation

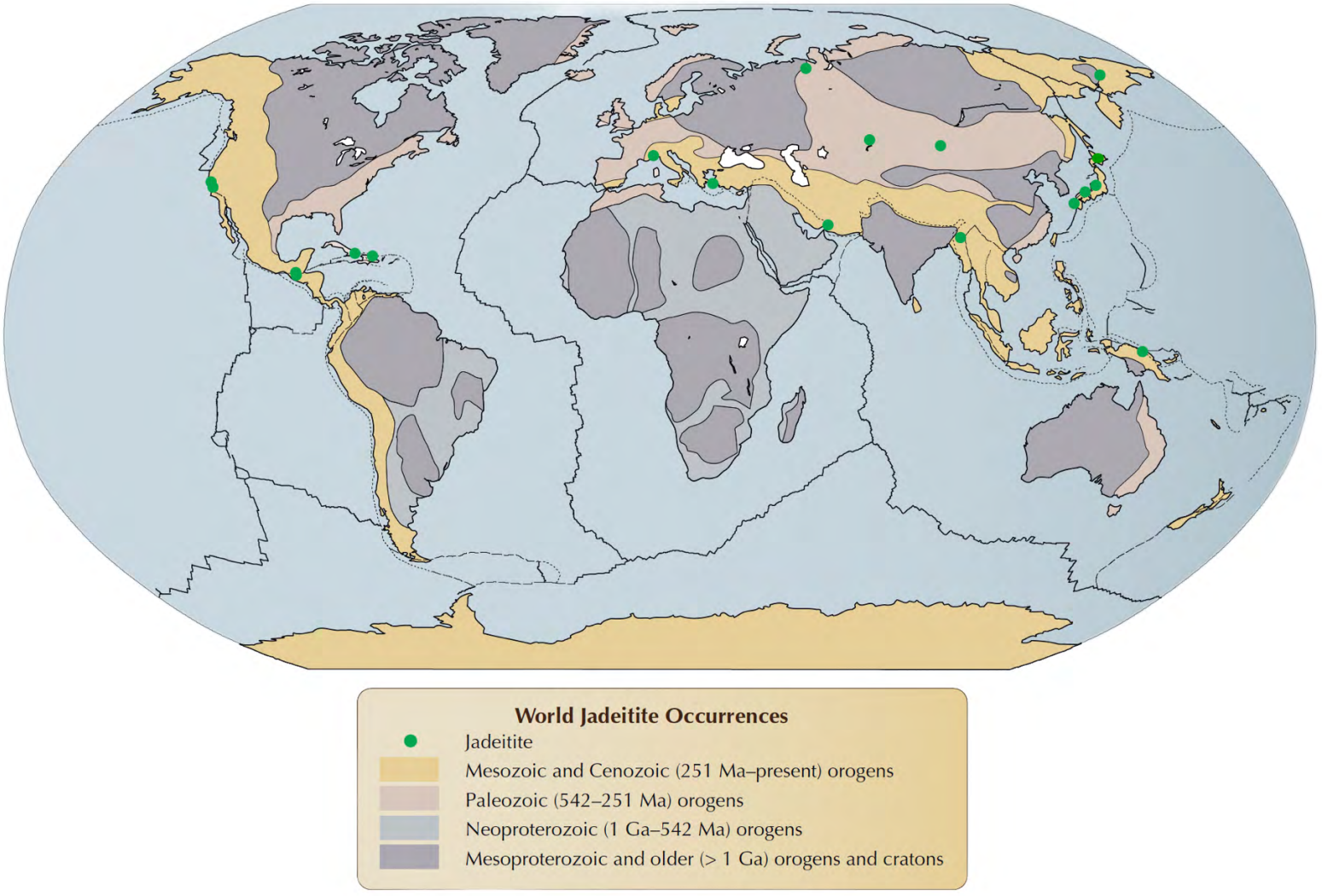
Bleaching with strong acids, surface dyeing, and resin impregnation can be combined to significantly improve the appearance and colour of Jadeite jade/fei cui. Jadeite jade/fei cui is firstly treated with strong acids to bleach out coloured impurities, followed by surface dyeing. Then the bleached and dyed fei cui is impregnated with colourless resins to restore its durability and improving its transparency. The structure of the fei cui is severely impacted by this treatment process (Brown 1993; Fryer 1997; Tan et al. 2006). Should be disclosed as “Bleached, dyed and impregnated” with the CIBJO Trade code “B,D,I”.

Multi coloured dyed and impregnated jadeite jade/fei cui (Roman’s Jewelry and Ross’s auctions image)

Natural, treated and artificial products chart



6.8 Fei Cui /Jadeite, Jadeitite Sources



A map of the world jadeitite occurrences (courtesy of Richard W. Hughes/Lotus Gemology)

Country	Locality/Occurrence	Importance
Myanmar	Myanmar is located on the eastern prolongation of the Himalayan orogenic system. From west to east, it comprises the four major tectonic domains: the Indo-Burma Range, the West Burma Block, the Mogok Belt, and the Shan Plateau. The Myanmar jadeite jade/fei cui mines are located at the eastern edge of the West Burma Block in a complex association with the Sagaing Fault and the boundary of the "Jade Mine Tract" with the Nanyaseik Uplift. The Jade Mine Tract is exposed in the western boundary of the Sagaing Fault in the Hpakan area of Kachin State and mainly consists of jadeitite-bearing serpentinite mélange, glaucophane schist, mica schist, diopside marble, and amphibolite. Jadeitite mostly occurs as veins or blocks in serpentinized peridotites or as boulders in drainages and conglomerates in the jadeite jade/fei cui Mine Tract.(Shi 2009)	Major

Guatemala	Jadeite-omphacite jade/fei cui occurs in tectonic serpentinites of the Motagua fault zone in Guatemala. Fei cui is the product of fluid-mediated crystallization and/or metasomatism, and the formation of deposits is related to plate tectonic subduction zones. Guatemalan fei cui was first discovered north of the Motagua River Valley, mined from primary deposits or from scattered boulders in the rivers. The primary deposits occur in serpentinite mélanges as vein or tectonic inclusions, showing a jadeite jade-albite-serpentinite transition zonation. The distribution range of Guatemalan fei cui extends from the west source in the Baja Verapaz Department to Morales, Izabal department (a newly discovered mining area) in the east, spanning over 200km along the Motagua River valley (Harlow 2011; S. I. Liu, Man, K.Y., Seneewong-Na-Ayutthaya, M., Jakkawanvibul, C. 2023; S. I. Liu, Man, K.Y., Seneewong-Na-Ayutthaya, M., Jakkawanvibul, C., Lee, A.T-Y. 2024)	Major
Russia	The main sources for jadeite jade/fei cui are the Western Sayan Ridge, the Polar Urals, and Chukotka, Russia. In Western Sayan Ridge, the Kashkalak jadeite jade ore body, occurs in the Borus ultramafic body. This ultramafic body is associated with the massive early Cambrian serpentine suite. Most of the bodies have been subjected to intense metamorphism and are metasomatized by low-temperature mineral assemblages. In the Polar Urals, jadeite jade ore bodies are hosted on the west of the Syum-Keu body, and jadeite jade mineralization is controlled by two fractures distributed in serpentinized peridotite.	Moderate
Japan	The largest source of jadeite jade/fei cui in Japan is the Itoigawa region and surrounding areas (Asahi Town, Otari Village, and Hakuba Village). Jadeite jade has also been discovered in the Wakasa area (Tottori Prefecture), Asahikawa City and Horokanai Town in Hokkaido, and the Chichibu and Yorii areas (Saitama Prefecture), as well as in seven other locations. Jadeite jade/fei cui from each region differs in geological characteristics, colour variations, and production volume, but the jadeite jade from Itoigawa is the only one in Japan regarded as having gemstone quality. (Abduriyim A. 2017; Anonymous 2024; Miyajima 2010, 2018).	Moderate
Kazakhstan	Jadeite jade/fei cui is produced in the tectonic zone of the Itmulund-Tyurkulam ophiolite in the form of an unrooted tumbled envelope or rock mass, the size of which ranges from a few metres to dozens of metres, with white jadeite jade as the main body, and a small number of black, green, and miscellaneous colour varieties.	Moderate
United States	Jadeite jade fei cui xenoliths in kimberlitic pipes in the Colorado Plateau (USA). Jadeite jade mines are located in New Idria, Franciscan complex, California and Ward Creek, Franciscan Complex, California	Minor
Iran	Occurs as metasomatic veins in magnesite bodies within meta-ultramafic rocks in the Sorkhan area of southeastern Iran. The jadeitite veins, completely enclosed in the magnesite lenses, are 5 to 15 cm wide, and show symmetrical zoning. The outer portions are snow white, whereas the inner portions show a clear, sky-blue colour.	Minor
Cuba	In Cuba, jadeitite/fei cui has been found in the Macambo region of the Sierra del Convento me ´lange, this rock is mainly as tectonic blocks of 0.5–6 m in size surrounded by antigorite serpentinite. Three types of jadeitite deposits can be identified in the Macambo region: 1) in-situ deposits within the mélange, 2) detrital boulders in late Miocene-early Pliocene conglomerates of the Punta Imías Formation, and 3) deposits exposed in Macambo and Guardarraya rivers and their mouths. Cuban fei cui is mostly grey green to dark green in colour, mainly composed of jadeite jade and omphacite , with a rough texture. (Cárdenas-Párraga et al. 2010; Cárdenas-Párraga et al. 2012; Garcia-Casco et al. 2010; García-Casco et al. 2009)	Minor

Other minor sources of fei cui / jadeite jade, jadeitite include the Dominican Republic, Greece, Indonesia, Italy, France, and Turkey.

6.9 Nephrite jade/Hetian yu rough Types

In China, nephrite jade/ Hetian yu rough is classified into four types, (NGTC)

1. Mountain (Primary)
2. Hillside ("Mountain Steam")
3. River/Pebble
4. Desert (Ventifact or "Gobi")

Mountain (Primary, 山料): 'Mountain' rough typically exhibits blocky or irregular morphologies, characterised by sharp edges and angular corners, with considerable variations in both quality and size depending on geological conditions. These characteristics reflect its formation in primary deposits, where the nephrite forms in situ within metamorphic bedrock, remains untransported, it shows minimal surface weathering, and retains its original texture.

Hillside ("Mountain Stream"): Weathered hillside deposits are called "Mountain-stream (shan liu shui, 山流水)" rough" and are often located on hillsides or at the foot of the mountain below the primary deposits. The stones show rounded edges and corners due to short distances of transportation.

River/pebble (子料): 'River' rough presents a naturally rounded, smooth, pebble-like form with varying sizes and often features a natural surface 'skin' — an oxidised outer layer — commonly in hues of brown, yellowish brown, or reddish brown. These pebbles are formed when primary deposits are eroded and transported over long distances by flowing water, undergoing repeated transportation, deposition, and reworking. In carving, artisans frequently incorporate these skin colours into their designs, treating them as treasured features that enhance the piece's natural beauty

Desert (Ventifact or "Gobi" 戈壁料): Nephrite from China's Kunlun Mountains near Hetian eventually reaches the edges of the Taklamakan Desert. Because of its long-term wind and sand erosion, the impure parts of the rough are completely removed and become the hardest Hetian material. The surfaces of the best desert rough resemble fish scales, but this is. exceptionally rare. Desert or 'ventifact' nephrite is distinguished by its surface weathering patterns resulting from water and wind erosion in arid desert environment. Typically, smaller and less rounded than river-transported pebble nephrite. Desert nephrite often originates from the further weathering and exposure of such pebbles, retaining certain surface characteristics indicative of their fluvial origins. There is confusion over the name of this type. In China, this desert material is called 'gobi' rough (戈壁料) not because it comes from the Gobi Desert (which is northeast of the Taklamakan Desert), but because the term gobi in Chinese refers to a type of hard-

gravel desert, instead of a sand-dune type desert. Ventifact (gobi) nephrite is also found in Wyoming in the United States.

Rough that is quarried directly from a primary deposit is termed 'Mountain' rough, such as the nephrite shown upper left, Rough that has been exposed to weathering, but has not yet made its way to a placer is termed 'Hillside' or 'Mountain Water' rough. Photo: Zhou Zhengyu, River' (upper right). Rough, such as the nephrite shown lower left is transported from the primary deposit to an alluvial deposit. In the process, the sharp edges are rounded off and in some cases the stones acquire brown secondary staining on their surfaces. Desert' or ventifact (gobi) rough nephrite. Photo: Ronnakorn Manorotkul/Lotus Gemology (lower right). Photo: NGTC (lower left)

Siren's Song. This incredible piece is carved from Xiuyan yù by Master Tang Shuai.
One of the oldest Chinese yu deposits, Xiuyan is in Liaoning Province, near the border with North Korea. Here, the yu is nephrite in intimate contact with serpentine and carvings may include both types of rock in a single piece. This demonstrates one of the problems of applying a mineral-based system of gem identification to a gem rock. In gemmology, it's important to look at 'wholes', not just 'parts'. Photo: Richard W. Hughes/Lotus Gemology; size: ~30 cm high.

6.10 Nephrite Jade (Hetian Yu 和田玉)

A set of Qing Nephrite Jade (Qing Hetian Yu, 青玉) ewer and cups, carved with an entwined floral design, by master carver Yu Ting. Courtesy of the Beijing Boguan International Auction Co., Ltd

Nephrite jade is a gemmological term referring to an ornamental mineral aggregate (rock) predominantly composed of the amphibole group minerals tremolite and actinolite, often with minor amounts of other minerals, with dense interlocking fibrous crystal matrix, which gives it exceptional toughness, making it highly resistant to breakage and ideal for fine carving. Chemically, nephrite jade is a calcium-magnesium-iron silicate. Its texture ranges from smooth to waxy, with a greasy to glassy lustre, transparency from opaque to translucent, and clarity from fair to extremely clean. Nephrite jade occurs in a wide range of colours - from creamy white, highly valued in the trade as *"Mutton Fat Nephrite Jade (Mutton Fat Yu, 羊脂玉)*" to various tones of green, yellow, brown, black, and purple. A notable yellowish or reddish brown surface "skin", prized in the trade, often develops on *Pebble Nephrite Jade* formed naturally into pebble-like forms through prolonged river transport and environment oxidation. Nephrite jade's fine fibrous texture, remarkable toughness, and greasy lustre with a high polish, gives nephrite jade a subtle and enduring beauty making it a treasured material in both art and tradition.

Nephrite jade has long been recognised as one of the principal materials referred to as yu (玉) in Chinese culture, and is also classified as jade in Western gemmology. Archaeological discoveries confirm its use as tools, utensils, ornamental, ceremonial, and ritual objects in China for over 10,000 years. While the origins of many ancient sources remain uncertain, the region of Hetian (Hotan)—located in present-day Xinjiang Uygur Autonomous Region—emerged as a major centre for nephrite jade production from the Han dynasty (202 BCE–

220 CE) onward. Revered in Chinese yu culture as Hetian yu (和田玉), its legacy endures to this day.

Also mined in Russia, Canada, Korea, USA (Alaska, Wyoming, California, Washington), Pakistan, and New Zealand, Central Europe, Australia, New Caledonia, South Korea (Chuncheon), and Taiwan have also reported occurrences. Nephrite jade remains a cornerstone of both Chinese yu tradition and Western jade classification. Admired for its enduring beauty, durability, and cultural symbolism, it stands as a material that bridges geological significance and artistic heritage—linking ancient craftsmanship with contemporary design and reinforcing its lasting place within the broader cultural and gemmological framework of yu and jade.

6.11 Classification

In gemmology, and in line with cultural and trade conventions, nephrite jade is often classified according to its colour and deposit types (China-National-Standard 2020; Shen et al. 2020)

6.11.1 Colour

The colour of nephrite jade is primarily determined by its main mineral components—tremolite and actinolite—along with their chemical composition. These amphibole minerals are responsible for producing the base hues of white and green, commonly referred to as primary colours. Additional colours such as yellow, red, brown, and black are typically the result of secondary minerals, trace elements, or alteration processes, and are thus known as secondary colours.

This classification is based not only on predominant body colour but also on the distribution of colour, the presence of mixed hues, partial inclusions, and degrees of transparency—all of which influence the overall visual and market perception of the nephrite jade.

6.11.1.1 White Nephrite Jade (Bai Hetian Yu)

White nephrite jade, known in Chinese as Bai Hetian Yu, typically exhibits a predominantly white body colour, occasionally accompanied by subtle hues of green, yellowish green, yellowish brown, pinkish red, or purple. The most esteemed type is referred to in the trade as “Mutton Fat Nephrite Jade" (Mutton Fat Yu), celebrated for its lustrous, translucent, creamy-white appearance and exceptionally fine texture. This distinctive quality arises from a high magnesium content and a low presence of iron.

Mutton fat nephrite jade (Mutton fat yu)

Courtesy of NGTC

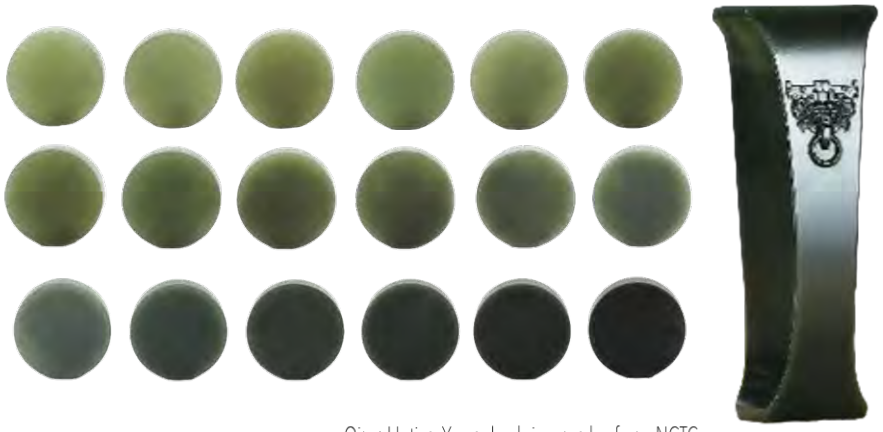
6.11.1.2 Green Nephrite Jade

Green nephrite jade exhibits a range of hues from light to dark green, with differing levels of colour saturation. It may also show subtle secondary hues like grey, yellow, or blue, influenced by trace elements such as iron, chromium, and nickel.

The following are notable subtypes of green nephrite jade—each historically treasured across different cultures, and especially deeply appreciated in Chinese tradition, where their names reflect long-standing aesthetic and cultural values; these are Qing Hetian Yu, Bi Hetian Yu, and Cuiqing Hetian Yu.

6.11.1.2.1 Qing Hetian Yu (青玉)

Qing Hetian Yu displays relatively light to dark tones of greyish green and yellowish green.



Qing Hetian Yu and coloir samples from NGTC

6.11.1.2.2 Bi Hetian Yu (碧玉)

Bi Hetian Yu exhibits light to dark tones of green or bluish green, depending primarily on the presence of iron, chromium, nickel, and other trace elements.

6.11.1.2.3 Cuiqing Hetian Yu (翠青)

Cuiqing Hetian Yu presents a light to relatively light vivid green hue, attributed to chromium content. The green areas typically cover no less than 5% of the stone's surface and are commonly interspersed with white nephrite jade, creating a striking contrast.

Hetian jade (Cuiqing Yu) samples, taken from "Hetian Jade Identification and Classification" analyses the interpretation of "National Standard Hetian yu - Testing and Classification" (Shen et al. 2020). Courtesy of NGTC

Cuiqing Hetian Yu, Courtesy of NGTC

6.11.1.3 Yellow Nephrite Jade (Huang Hetian Yu 黃玉)

Yellow nephrite jade typically presents light to relatively dark tones of yellow, greenish yellow, or reddish yellow, mainly caused by iron.

A finely carved Yellow Nephrite Jade (Huang Hetian Yu, 黃玉) pendant, entitled 'Soaring Bull', created by master carver Tan Fe,i Courtesy of NGTC

Yellow nephrite jade (Huang Hetian Yu) samples from NGTC

6.11.1.4 Brown Nephrite Jade (Tang Hetian Yu 糖玉)

Brown nephrite jade exhibits hues ranging from light to dark tones of brown, reddish brown, or yellowish brown, caused by natural staining from iron or manganese. Its rich brown coloration typically covers most of the stone, impacting a warm, caramel-like appearance that is highly prized in the market. In China it known as Tang Hetian Yu, with "Tang" meaning "sugar", a reference to its brown sugar-like hue.

A Brown Nephrite Jade (Tang Hetian Yu, 糖玉) carving of a lion-head fish, created by master carver Xu Yundong. Courtesy of the Beijing Boguan International Auction Co., Ltd

6.11.1.5 Black Nephrite Jade (Mo Hetian Yu 墨玉)

Black nephrite jade, in Chinese known as Mo Hetian Yu, with "Mo" meaning ink, is defined by a black coloration covering at least 30% of its surface, primarily caused by graphite inclusions within the tremolite-actinolite matrix. It displays dark to very dark tones, sometimes with white or bluish-green areas. Graphite appears in patterns such as specks, clouds, or zebra-like stripes, adding to its distinct appearance.

Black nephrite jade (Mo Haitian Yu)

6.12 Possible Treatments Nephrite Jade / Haitian Yu

It is in the best interest and responsibility of the trade for consumers to be fully informed with regards to any treatments applied to Nephrite Jade / Haitian Yu. Treatments may impact value, and are often not permanent or may require special care; the seller shall therefore inform the purchaser about the treatment and any special care requirements.

6.12.1 Surface waxing;

Filling minor fissures to conceal natural cracks and improve surface lustre. Over time, the wax may wear off, causing the fissures to reappear. Should be disclosed as “waxed” with the CIBJO trade code “W”.

Nephrite bangles are heated, dipped in molten wax, and polished to improve the surface appearance.

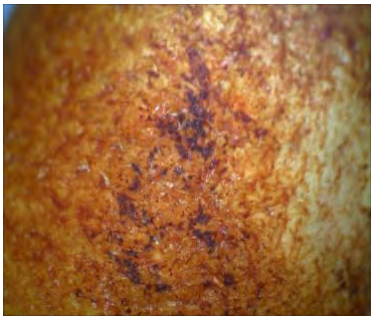
6.12.2 Bleaching:

Using acidic solutions to remove dark inclusions such as spots, dendritic ("grass-like") patterns, or linear black, brown, and dark brown colours ; can also whiten brown nephrite jade to produce a flawless appearance. Should be disclosed as “bleached” with the CIBJO trade code “B”.

Before *After*

6.12.3 Dying

Altering the colour appearance, commonly to imitate natural pebble nephrite jade by producing yellowish brown or reddish brown hues, and sometimes green, black, or other colours. Should be disclosed as “dyed” with the CIBJO trade code “D”.



6.12.4 Coating

Applying a relatively thick, colourless or coloured layer onto the polished surface of nephrite jade to enhance the lustre of otherwise porous or lower-quality material. Should be disclosed as “coated” with the CIBJO trade code “C”.

A coloured coating artificially applied to a nephrite boulder, the circled area are where the coating has been removed.

6.13 Nephrite Jade / Haitian Yu Artificial Products

6.13.1 Composite nephrite jade

Composite nephrite jade refers to objects assembled from two or more pieces of nephrite jade, or from two or more different materials, one of which includes nephrite jade.

In the market, it is common to encounter so-called “pebble nephrite jade” with small "windows" of exposed white material, while the rest remains covered by natural-looking skin. Upon closer examination, these exposed areas are often found to be thin slices or pieces of high-quality white nephrite jade artificially adhered onto low-quality nephrite jade base—or even onto non-nephrite jade materials such as quartzite, marble, or serpentine. In such cases, the main body consists primarily of inferior materials, with genuine nephrite jade comprising only a small portion.

Composite nephrite jade where it can be seen that the brown carvings have been artificially adhered to the base material,

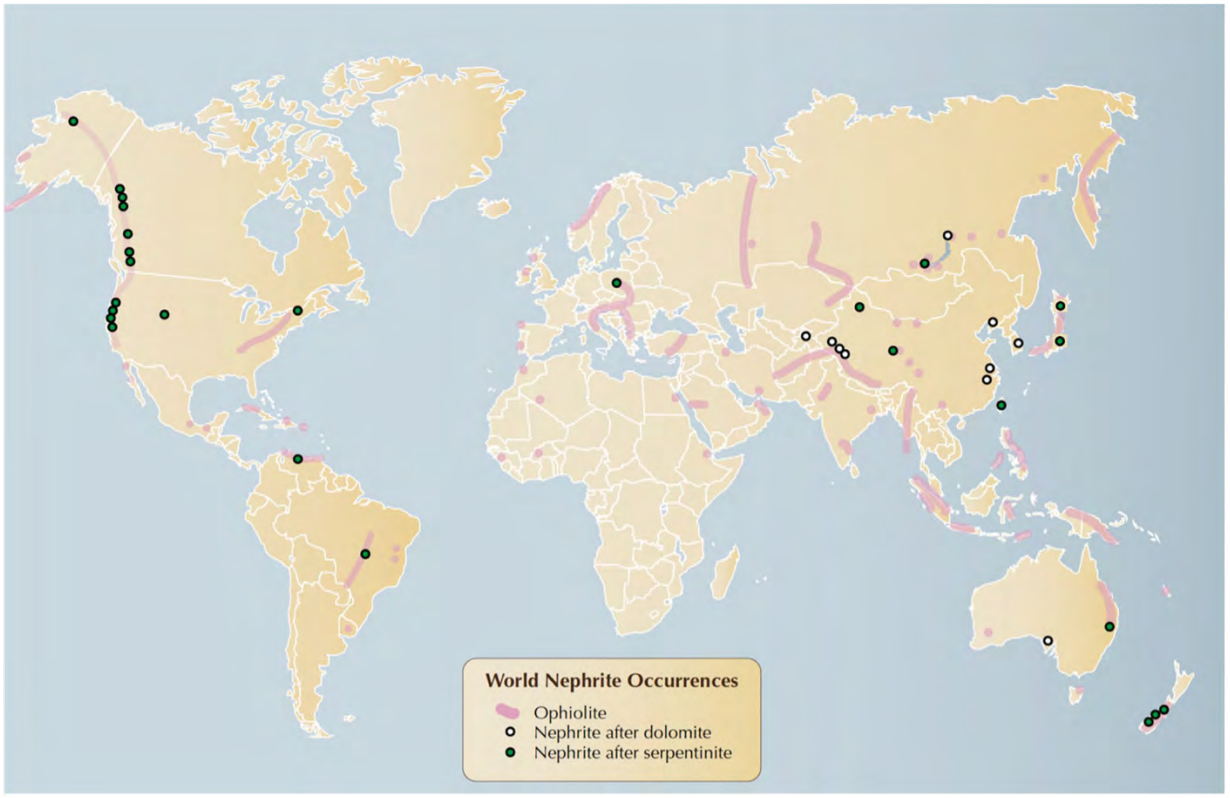
6.14 Imitations of nephrite jade

In the market, imitations of nephrite jade made from glass are commonly seen, typically in colours such as white, green, and yellow. Some are further treated with artificial "pores" and dyed to mimic the appearance of pebble nephrite jade.

Nephrite jade imitations

Courtesy of NGTC

6.15 Nephrite jade/Hetian Yu Sources



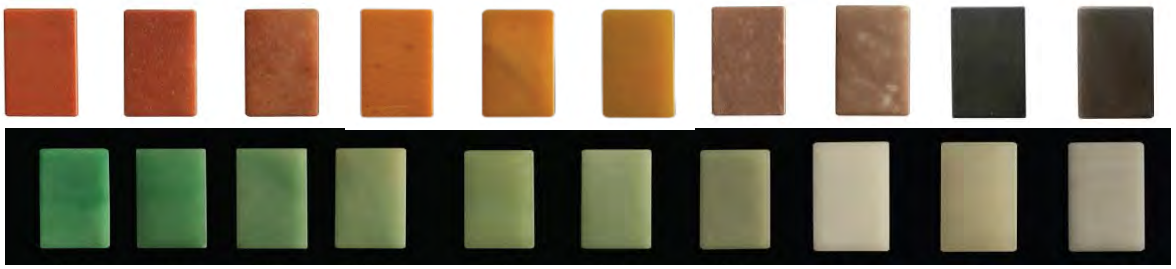
A map of the world nephrite occurrences (courtesy of Richard W. Hughes/Lotus Gemology)

Country	Locality/Occurrence	Importance
Australia	Nephrite from Cowell South Australia. It has been intermittently mined since the 1970s. The skin of the boulder is unusual insofar as it has the brown ochre colours of the Australian outback. The colours are a very dark green to almost black. Australia nephrite jade deposits resemble the magnesium skarn-type formations of the Western Kunlun Mountains in Xinjiang, China, with similar geological settings.	Major
Canada	Canada produces abundant dark green nephrite jade, locally often called "Arctic Jade", known for large block sizes and diverse colours. High-grade material is less common.	Major
China	China holds the most extensive distribution of nephrite jade resources, producing all known types. The Yulong Kashgar and Karakash Rivers in Hetian (Hotan), Xinjiang are especially famous for high-quality river pebble nephrite jade. Key producing regions include Xinjiang, Qinghai, Liaoning, and Taiwan, with additional deposits discovered in recent years (张蓓莉 2006).	Major
New Zealand	New Zealand's West Coast produces dark green nephrite jade, historically valued by the indigenous Māori people, who call it "Pounamu" or "Greenstone". It typically exhibits various shades of green, occasionally with a yellowish hue.	Major
Russia	Russia yields high-quality white and dark green nephrite jade, mainly from the Sayan Mountains, Lake Baikal's southwest, and the Vitim Highlands. Most are primary deposits, though secondary sources exist.	Major
Japan	The production of nephrite in Japan is limited to a few regions, but occurrences have been confirmed in several locations across the country. One of the representative sources is Hokkaido, where nephrite has been found within geological structures associated with serpentine rocks, often exhibiting a greenish hue. In addition, even in Itoigawa City, Niigata Prefecture–renowned as a major jadeite jade-producing area–nephrite is said to coexist within the broader geological environment. Furthermore, there are historical records of nephrite being discovered in other regions such as Nagano, Gifu, and Nagasaki Prefectures, though in all cases, the quantities are small and no commercial-scale mining has been conducted.	Minor
Pakistan	Pakistan hosts significant deposits of dark green nephrite jade, producing material of relatively high quality.	Minor
South Korea	The Chuncheon deposit in the mountainous area of Wolgok-ri, east of Chuncheon City, Gangwon Province is one of the world's largest nephrite belts, with reserves estimated at 300,000–400,000 tonnes, around a quarter of which is gem-quality.	Minor
United States	Several nephrite sources are reported in the U.S., with some regions yielding notable quantities of greyish green nephrite jade.	Minor

Other minor occurrences include, Finland, Germany, Indonesia, Italy, Mongolia, New Caledonia, Poland, Russia, Switzerland, United Kingdom, Uzbekistan and Zimbabwe.

Other Yu (玉) Species

Aside from fei cui, jadeite jade and nephrite jade, various species of Yu are available in the market, favoured for their vibrant colours or fine textures (Anonymous 2017). It is important to note that the term jade shall not be used in conjunction with any of the following described yu, the term jade being restricted to jadeite jade or nephrite only.



6.16 Quartzite Yu

Mineral	Quartz, with minor hematite, goethite, mica, and clay minerals.
Colour	Yellow, red, white, green, black, blue
Lustre	Glassy, greasy
Transparency	Transparent to opaque
Mohs' hardness	6 to 7
Specific gravity	2.53 to 2.72
Refractive index	1.53 to 1.55
Texture	Phanerocrystalline structure

6.17 Dushan Yu

Mineral	Plagioclase and zoisite, with chromian muscovite and actinolite as constituents.
Colour	Yellow, red, white, green, black, blue
Lustre	Glassy, greasy
Transparency	Semi-transparent to opaque
Mohs' hardness	5.5 to 7
Specific gravity	2.70 to 3.09
Refractive index	1.56 to 1.70
Texture	Fibrous granular structure, crystalloblastic texture, metasomatic texture

6.18 Serpentine Yu

Mineral	Serpentine, with possible calcite, talc, and magnetite.
Colour	Green, white, black, yellow, blue
Lustre	Glassy, waxy
Transparency	Semi-transparent to opaque
Mohs' hardness	2.5 to 6
Specific gravity	2.44 to 2.80
Refractive index	1.56 to 1.57
Texture	Fibrous granular structure

6.19 Albite Yu

Mineral	Albite, with possible jadeite, omphacite, actinolite, and chlorite.
Colour	greyish white, greyish green, white
Lustre	Glassy, greasy
Transparency	Semi-transparent to opaque
Mohs' hardness	6
Specific gravity	2.60 to 2.63
Refractive index	1.52 to 1.53
Texture	Fibrous structure, granular structure

6.20 Hydrogrossular Yu

Mineral	Hydrogrossular, with possible idocrase.
Colour	Green to blueish green, pink, white, colourless
Lustre	glassy, greasy
Transparency	Semi-transparent to opaque
Mohs' hardness	7
Specific gravity	3.15 to 3.55
Refractive index	1.67 to 1.73
Texture	Granular structure

6.21 Maw-sit-sit

Rock composed primarily of kosmochlor, chromian jadeite, amphibole group minerals and feldspar.

Mineral	Kosmochlor, chromian jadeite, amphibole group minerals and feldspar.
Colour	Green
Lustre	glassy
Transparency	Semi-transparent to opaque
Mohs' hardness	5 to 5.5
Specific gravity	2.8 to 3.1
Refractive index	Differences arise from varying testing points
Texture	Fibrous structure, granular structure

APPENDIX A – CHINESE TRADE NAMES FOR FEI CUI

Chinese Trade terms	Description - main considerations	Examples
Imperial Green 帝王绿(*)	**Colour**: Green with vivid and intense saturation, evenly distributed across the stone **Transparency**: Transparent to semi-transparent **Texture**: Extra fine to fine	
Apple Green 苹果绿	**Colour**: Yellowish green, with medium saturation, evenly distributed across the stone	
Pea green 豆绿	**Colour**: Light green to bluish green, with relatively low saturation **Transparency**: Semi-transparent to semi-translucent **Texture**: Coarse	
Greyish green (Oily green) 油青	**Colour**: Green to bluish green, may have a dark tone **Transparency**: Semi-transparent to translucent **Texture**: Fine	

Courtesy of NGTC

Hte Long Sein 铁龙生	**Colour**: Intense, evenly distributed green. **Transparency**: Semi-translucent **Texture**: Relatively fine to relatively coarse	
Opaque Green 干青	**Colour**: Green, with light to very light tone **Transparency**: Semi-translucent to opaque	
Sky Blue 天空蓝	**Colour**: Bluish green **Transparency**: Transparent to semi-transparent **Texture:** Extra fine to fine	
Fei (Chinese Character "翡")	**Colour**: Yellow, orangish red to red	 
Inky-Black墨翠	**Colour:** Over-saturated colour appears black under reflected light and green under transmitted light. **Transparency**: Semi-translucent to opaque	

Yellow-Green 黄加绿	**Colour**: Mottled green and yellow	
Lavender-Green (*) 春带彩	**Colour**: Mottled green and purple	
Lavender (*) (紫罗兰)	**Colour**: Various degrees of violet or purple with sometimes a bluish tint.	
Fu Lu Shou"福禄寿", symbolising fortune, prosperity, and longevity)	**Colour**: Mottled green, yellow, and purple.	
Floating Flowers 飘花	Blue or green thread-like or cottony omphacites, creating various graceful colour patterns.	
Silkie (Black skin and bones Chicken) 乌鸡种	Graphite or metallic minerals. Graphite occurs as bandings, clouds or scattered particles, resembling Chinese ink wash paintings.	

Glassy Zhong 玻璃种	**Transparency**: Transparent **Texture**: Extra fine	
Icy Zhong 冰种	**Transparency**: Transparent to semi-transparent **Texture**: Extra fine	
Icy to Sticky-Rice Zhong 冰糯种	**Transparency**: Semi-transparent **Texture**: Fine	
Sticky-Rice Zhong 糯种	**Transparency**: Translucent **Texture**: Fine to relatively fine	
Pea Zhong 豆种	**Transparency**: Semi-translucent **Texture**: Relatively coarse to coarse	
Porcelain Zhong 瓷种	**Transparency**: Opaque **Texture**: Relatively fine	

English Term/name	Simplified Chinese Term/Name	Pinyin	English Pronunciation	International phonetics alphabet
Yu	玉	yù	*ee-yoo*	/juː/
Fei Cui	翡翠	fěi cuì.	*fay-chu-ee*	/feɪ ˈtsweɪ/
Zhong	种	zhǒng	jong	/dʒʊŋ/
Nephrite jade /Hetian Yu	和田玉	hé tián yù	huh-tyahn-yoo	/hə ˈtjɛn juː/
Qing Hetian Yu	青玉	qing yù	ching-yoo	/tʃɪŋ juː/
Mutton Fat Nephrite jade / Mutton Fat Yu	羊脂玉	yáng zhī yù	yahng-jir-yoo	/jɑːŋ dʒɜː juː/
Bi Hetian Yu	碧玉	bi yù	bee-yoo	/biː juː/
Cuiqing Hetian Yu	翠青	cuì qing	tsway -ching	/ˈtsweɪ tʃɪŋ/
Yellow Nephrite Jade /Huang Hetian Yu	黄玉	huáng yù	hwahng-yoo	/hwɑːŋ juː/
Brown Nephrite Jade /Tang Hetian Yu	糖玉	táng yù	tahng-yoo	/tɑːŋ juː/
Black Nephrite Jade /Mo Hetian Yu	墨玉	mò yù	maw-yoo	/mɔː juː/
Imperial Green	帝王绿	dì wángyù	dee-wahng-loo	/diː wɑːŋ luː/
Apple Green	苹果绿	píng guǒ lǜ	ping-gwoh-loo	/pɪŋ gwɔː luː/
Pea green	豆绿	dòu lǜ	doh-loo	/doʊ luː/
Greyish green	油青	yóu qīng	yoh-ching	/joʊ tʃɪŋ/
Hte Long Sein	铁龙生	tiě lóng shēng	tee-lohng-sheng	/tjɛ lʊŋ ʃəŋ/
Opaque Green	干青	gān qing	gahn-ching	/gæn tʃɪŋ/
Sky Blue	天空蓝	tiān kōng lán	tee-ahn-kohng-lahn	/tjɛn kɒŋ læn/
Fei	翡	fěi	fay	/feɪ/
Inky-Black	墨翠	mò cuì	maw-tsway	/mɔː tsweɪ/
Yellow-Green	黄加绿	huáng jiā lǜ	hwahng-jee-ah-loo	/hwɑːŋ dʒɑː luː/
Lavender-Green	春带彩	chūn dài cǎi	choon-die-tsai	/tʃʊn daɪ tsaɪ/
Lavender	紫罗兰	chūn dài cǎi	tzee-loh-lahn	/zɪ lwɔː læn/
Fu Lu Shou	福禄寿	chūn dài cǎi	foo-loo-show	/fuː luː ʃoʊ/
Floating Flowers	飘花	piāo huā	pee-ow-hwah	/pjaʊ hwɑː/
Silkie/Black skin and bones Chicken	乌鸡	wū jī	woo-jee	/wuː dʒiː/
Glassy Zhong	玻璃种	bō lí zhǒng	boh-lee-jong	/ˈbɔː liː dʒʊŋ/
Icy Zhong	冰种	bīng zhǒng	bing-jong	/bɪŋ dʒʊŋ/
Icy to Sticky-Rice Zhong	冰糯种	bīng nuò zhǒng	bing-nwoh-jong	/bɪŋ nwɔː dʒʊŋ/
Sticky-Rice Zhong	糯种	nuò zhǒng	nwoh-jong	/nwɔː dʒʊŋ/
Pea Zhong	豆种	dòu zhǒng	doh-jong	/doʊ dʒʊŋ/
Ceramic Zhong	瓷种	cí zhǒng	tsee-jong	/tsɪ dʒʊŋ/

APPENDIX B – Misnomers for Jade

After Schluessel, R. (2022) Glossary • Jades & lookalikes. In *Jade • A Gemologist's Guide,* Edited by Hughes, R.W., Bangkok: Lotus Publishing, pp. 480–485. With edits.

See also (Galopim-de-Carvalho 2024)

Misnomers often arise because something was named long before its correct nature was known, or because an earlier form of something has been replaced by a later form to which the name no longer suitably applies

Afghanistan (Afghan) jade: Off-white to greenish yellow bowenite (serpentine variety); term also used for untreated marble.
African jade: Serpentine or massive fuchsite known as verdite in countries of southern Africa.
African jade or South African jade: Massive green hydrogrossular garnet found in Transvaal, a.k.a. "Transvaal jade."
Agate jade or red agate jade: Artificially dyed agate, brownish red; other colors possible, including green.
Alaska jade: Pectolite from Alaska (sodium and calcium inosilicate hydroxide).
Albite jade: Combination of white albite feldspar and green actinolite.
Alpine jade: Serpentine or bowenite. Also, omphacite from the western Alps, Piedmont, Italy.
Amazon jade or Amazon stone: Green microcline feldspar (amazonite).
American jade: Translucent to semi-opaque green vesuvianite; also called green idocrase or californite.
Andes jade: Serpentine
Andesine jade: Massive andesine feldspar.
Asian jade: Refers to a variety of fake jade-look-alike materials; generally green, particularly serpentine; also, white.
Australian jade: Green chrysoprase.
Aventurine jade: Aventurine quartzite.
Aztec jade: Jade and fei cui from Guatemala.
Beach jade: Nephrite from Jade Cove, California coast.
Beijing jade: Artificial green glass misrepresented as jade.
Beijing white jade: Quartzite.
Big Sur jade: Nephrite, particularly blue nephrite, from Big Sur, California.
Blue floating flower: Transparent to translucent, white to colourless to near-colourless albite aggregate with bluish gray streaks; it is found in the Burmese Jade Belt.
Botryoidal jade (bubble jade): Nephrite rough that has a globular external form resembling a bunch of grapes.

California jade: Serpentine, fei cui or nephrite from California. Term also used for green vesuvianite from California.
Canada jade: Nephrite from British Columbia, but also refers to serpentine and soapstone (talc-schist).
Candy jade: Marble or other "soft rock" types artificially colour dyed to various colors: green, yellow, pink, light blue, purple.
Carolina jade or North Carolina jade: Unakite, an altered granite composed of pink feldspar, green epidote and colourless quartz.
Chalchihuitl: Aztec word used in Mexico to refer to jade and all jade materials including serpentine, smithsonite, turquoise, dyed green marble and other dyed rocks.
Chicken bone jade: Chinese term for opaque off-white nephrite that resembles chicken bone.
Chinese jade: Generally applies to white to off-white nephrite, but has been used as a misleading term for any natural and artificial jade-look-alike ornamental material of any colour, such as rose quartz, serpentine and others.
Chlorastrolite (pumpellyite): Fibrous green banded stone from Lake Superior, Michigan, USA.
Chloromelanite: Obsolete term formerly used for maw-sit-sit or dark fei cui jade. The name was created by Damour in 1865.
Chuncheon jade: Nephrite produced in South Korea. (See Han Guo Liao)
Colorado jade or Pike's Peak jade: Green microcline feldspar, amazonite from Pike's Peak, Colorado.
Coral jade: Silicified coral found mainly in China.
Dominican jade: Pale blue larimar (pectolite) from the Dominican Republic.
Dulan jade: Serpentine from Dulan, China.
Dushan jade: Green to greyish green mineral aggregate primarily composed of albite and zoisite (also known as saussurite) produced at Nanyang in China's Henan Province. (See Nanyang jade)
Egyptian jade: Green to blue-green artificial glass.
Feather River jade: Californite (translucent to semi-opaque variety of vesuvianite).
Fire jade: Artificial glass; all colors are possible; also, very low quality opal. May be colour dyed.
Fujian jade: Pyrophyllite and talc from Fujian Province, China.
Fukien jade: Soapstone (a.k.a. steatite – talc-schist) from Fukien Province, China.
Garnet jade: Varieties of poor-quality garnet, generally brownish and greenish; also used for massive green hydrogrossular garnet from Transvaal, southern Africa. (See Transvaal jade)
Grossular jade: Hydrogrossular
Ghost jade: Coarse-grained amphibole found in western Nevada, USA.
Gobi jade: See "ventifact" nephrite.
Guizhou jade: Green quartzite from Qinglong, Guizhou Province, China.

Hami (Xinjiang) jade: Green chromiferous zoisite and/or diopside as well as other silicates (e.g. feldspar, garnet etc) from Hami in the Xinjiang Autonomous Region, China.
Han Guo Liao: Korean nephrite in the Chinese jade market. (See Chuncheon jade)
Happy Camp jade: Californite (translucent to semi-opaque variety of vesuvianite) found in California.
Henan (Honan) jade: Nephrite from Henan Province in China. Also aventurine quartzite produced in Henan. Also, pyrophyllite and talc from Henan. Soapstone (steatite, a talc-schist rock), serpentine or bowenite from Henan.
Hidaka Jade: Chromediopside, Uvarovite, Chromite.
Honan Jade: Quartz – aventurine
Hong Shan-Jade: Antigorite
Hsiu Yen Jade: Serpentine also yellow green
Hsichwan Jade: Tiger-eye, Crocidolite.
Hualien jade: Green nephrite from Hualien, Taiwan, China. Also green marble from the same area.
Huanbai jade (Afghan jade): Untreated marble.
Hunan jade: Serpentine variety bowenite from Hunan, China.
Imori stone: See meta-jade.
Imperial Mexican jade: Artificially green-dyed calcite.
Indian jade: Aventurine quartz.
Inuit jade or Eskimo jade: Mostly soapstone (talc-schist); also, serpentine.
Jade matrix: Greenish tremolite with off-white albite feldspar.
Jade-albite: Obsolete term formerly used for maw-sit-sit.
Jade tenace: White to light green mineral aggregate saussurite.
Jadine: Australian green chrysoprase.
Japanese jade: Bloodstone-jasper, serpentine, or prehnite from Japan. Note that Japan is a legitimate source of jadeite jade.
Jasper jade: Jasper.
Java jade: Rock with pumpellyite as the main constituent.
Jiulong (Fujian) jade: Green chrome-bearing zoisite and/or diopside as well as other silicates (e.g. feldspar, garnet etc) from Jiulong, China.
Jiuquan (Gansu) jade: Green serpentine with black spots, mined in Jiuquan, China.
Korea(n) jade: Serpentine, bowenite, steatite, soapstone and other greenish stones; also, artificial green glass. Also referred to as “new jade.”
Kosmochlor jade: Maw-sit-sit from Myanmar.
Kunlun (Xinjiang) jade: Serpentine from Kunlun in the Xinjiang Autonomous Region, China. Not to be confused with Kunlun’s nephrite from Qinghai.
Lantian jade: Serpentinized marble produced in Shaanxi Province of Lantian County in China. (See Yuchuan jade) Term also used for off-white to yellowish to pale blue tremolite-serpentine.
Lemon jade: Yellow serpentine.
Lushan jade/Lushan mountain jade: Marble.
Malaysian jade: Artificially dyed quartzite; mainly green, reddish, and purplish. Also chalcedony.

Manchurian jade: Soapstone (steatite, a talc-schist rock).
Marble jade nugget or jade marble nugget: Plastic and acrylic.
Marble jade or jade marble: Dyed green marble.
Marble Bar Jade: Chlorite
Maw-sit-sit jade: A rock containing kosmochlor, jadeite jade and other minerals, found only at Maw Sit in Myanmar's jade district.
Meta-jade (Imori stone, Victoria stone): Artificial devitrified glass simulant once produced in Japan.
Mexican jade/imperial Mexican jade: Dyed onyx or dyed green calcite.
Mindoro jade: Green muscovite mica from Mindoro Island, Philippines.
Mixian jade: Aventurine quartz.
Nanyang jade: See Dushan jade.
New Caledonian jade: Anorthite feldspar.
New jade: Serpentine or its variety bowenite.
Ophite/Ophite jade: Serpentine.
Oregon jade: Massive green garnet mined in Oregon, USA. Term also used for dark green jasper mined in Oregon.
Oregon jade jasper: Dark green jasper mine in Oregon, USA.
Oriental alabaster: Dyed calcite.
Pectolite jade: Pectolite (sodium and calcium inosilicate hydroxide).
Peking jade: A mixture including artificial green glass, yellowish green serpentine and sometimes nephrite.
Piedmont (or Piemonte) jade: Omphacite from the Piedmont region in northern Italy.
Polar jade: High-quality green nephrite sourced from the Polar Mine in Canada.
Pulga jade: Green vesuvianite, also called green idocrase or Californite.
Qinghai jade: Nephrite from Qinghai Province, northwestern China. Refers also to green massive hydrogrossular occurring in the same province.
Queensland jade: Chrysoprase.
Quilian jade: A serpentine mined in the Quilian mountains (also known as Nan Shan), bordering Qinghai and Gansu provinces, China. The material is dark green with numerous black spots.
Rainbow jade: Jadeite jade-pumpellyite rock.
Regal jade: Aventurine quartz. (See Indian jade)
Rhode Island jade: Bowenite variety of serpentine.
Rhodesian jade: Green verdite.
Roman jade: Yellowish to brownish alabaster; also, green and reddish artificial glass.
Russian jade: Usually serpentine; term also used for massive chrome diopside aggregate; term also used for nephrite and fei cui from Russia.
Serpentine jade: Bowenite variety of serpentine.
Shaanxi Moyu jade: Massive calcite.
Shanghai jade: Pyrophyllite and talc or soapstone (steatite, a talc-schist rock).
Shetaicui jade: Aventurine, dolomite, quartzite.
Shoushan jade: Pyrophyllite and talc or soapstone (steatite, a talc-schist rock). Also refers to "lava stone," which is a rock made of lava and crystalline ore mined in Shoushan, China.

Also known as Shoushan Tianhuang and Shoushan Lycee Cave Stone.
Siberian blue jade: Blue rock consisting of quartz, tremolite and magnesio-arfvedsonite mined in Siberia; also named dianite.
Siberian jade: Term used for serpentine and for nephrite found near Lake Baikal, Siberia.
Silver Peak fei cui: Malachite.
Sinkiang jade: See Xinjiang jade.
South African jade: See Transvaal jade.
South American jade: Red to bicolored pink and white massive rhodonite.
Southern jade: See Xinyi jade.
Styrian jade: Greenish rock constituted of aluminous serpentine with pinite and clinochlore, mined in Steiermark, Austria (a.k.a. pseudophite).
Suzhou (Soochow) jade: Green to grey-green soapstone (talc-schist), serpentine, bowenite or steatite.
Swiss jade: Dyed-green jasper or white to green saussurite from the Swiss Alps.
Tangiwai: Titanium-rich bowenite from New Zealand.
Tanzanian/East-African jade: Anyolite, an amphibole-rich massive zoisite with ruby xenocrysts, mined in Longido, Tanzania.
Teton jade: Serpentine.
Timber-veined jade: Massive calcite with iron stain.
Transvaal jade: Massive green hydrogrossular and vesuvianite rock found in Transvaal, southern Africa.
Tushan Jade: Zoisite or Diopside and Anorthite
Ural jade: Serpentine from the Ural Mountains, Russia.
Ureyite: Obsolete term formerly used for kosmochlor.
Val Malenco jade: Serpentine from Val Malenco, Sondrio Province, northern Italy.
Vesuvianite jade: Green vesuvianite, also called green idocrase or californite.
Virginia jade: Green microcline feldspar, amazonite from Virginia, USA.
White jade: Jadeite jade, nephrite or translucent grossular (Transvaal jade).

APPENDIX C – Trade or Commercial names for Jade

See also (Galopim-de-Carvalho 2024)

amphibole jade Jade gem varieties essentially composed of polycrystalline aggregates of fibrous amphibole minerals, notably in the tremolite-actinolite isomorphic series (nephrite).
ancient jade Old trade name for nephrite jade used to make axes in the Neolithic. Same as axe jade or axian jade.
axe jade Old trade name for nephrite jade used to make axes in the Neolithic. Same as axian jade or ancient jade.
axian jade Old trade name for nephrite jade used to make axes in the Neolithic. Same as axe jade or ancient jade.
B.C. jade Trade name for dark green nephrite jade from British Columbia, Canada.
beach jade Trade name for nephrite jade from Jade Cove, California, USA.
Big Sur jade Trade name for nephrite jade from Big Sur, California, USA.
black nephrite uniform black nephrite jade (actinolite/ferro-actinolite-rich with minor quartz, andradite, apatite, stilplomelane, epidote, diopside, pyrite and pyrrotite) from Guangxi, southern China, first reported in 2012 and commonly used for carvings. Also known in the trade as black jade.
botryoidal jade nephrite jade rough with a globular, or botryoidal, shape that resembles a grape-like eternal structure. Same as bubble jade.
bubble jade nephrite jade rough with a globular, or botryoidal, shape that resembles a grape-like eternal structure. Same as botryoidal jade.
California jade white to black to various tones of green nephrite jade and, to a lesser extent, pyroxene jade from California, USA.
Canadian jade dark green nephrite jade from British Columbia, Canada.
cat's-eye jade a green to yellow chatoyant variety of actinolite-tremolite from Taiwan. Similar-looking material occurs in Canada. Technically it is not a jade and is also known in the trade as Taiwan cat's-eye.
cat's-eye nephrite a yellowish to green chatoyant variety of actinolite-tremolite occurring, for example, in Taiwan and Canada. Known in the trade as Taiwan cat's-eye or cat's-eye jade.
chicken bone jade ivory-like nephrite jade with white to yellow to pale brown colour apparently caused by heat or oxidation (e.g. in a burial site).
chicken jade See *chicken bone jade*.
Chinese jade white to nearly white nephrite jade.
Chuncheon jade nephrite jade from Chuncheon, in mid-eastern South Korea.
dendritic jade light coloured nephrite jade with dark chlorite

dendritic inclusions found in secondary deposits in Guangxi Province, China.

grave jade Same as tomb jade.

Guanxi jade Old Longxi jade, a massive semi-transparent yellow to green tremolite-rich rock from Longxi, Wenchuan in Sichuan Province, China, that was discovered in the 1940s and also marketed as Nanyang Jade and Xu Jade. Some material may show cat's-eye effect.

Hetian jade white to light green nephrite jade from China's Xinjiang Uygur Autonomous Region, notably in the Kunlun Mountains and rivers, where the historic city of Hetian (Hotan, Khotan) is located. The famous white mutton fat jade has been mined in this region for ca. 3000 years. High quality white jade from Altai, China, has also been traded as Hetian jade. Same as Hotan jade, Khotan jade.

Kawakawa, kahurangi, and īnanga: Trade names for nephrite varieties produced in New Zealand.

Longxi Jade a massive, semi-transparent yellow to green tremolite-rich rock from Longxi, Wenchuan in Sichuan Province, China that was discovered in the 1940s and formerly marketed as Guanxi Jade, Nanyang Jade and Xu Jade. Some material has cat's-eye effect.

Luodian jade fine-grained, white nephrite jade with a porcelain lustre from Luodian County, Guizhou Province, China, primarily composed of fibrous tremolite and small amounts of quartz.

Manasi jade green nephrite jade from the Manasi river valley in China's Xinjiang Uygur Autonomous Region. Mines in this historic region were closed in the late 18th century and re-opened in the 1970s.

mutton fat jade Generic name for pure white, homogeneous nephrite jade, primarily composed of almost pure tremolite, with a greasy lustre, hence the name. Traditionally occurs in the Kunlun Mountains and rivers of the Xinjiang Uygur Autonomous Region in China, where the historical city of Hetian (Khotan) is located, where it has been known for ca. 3000 years.

Nanyang Jade Old trade name for Longxi jade, a massive, semi-transparent, yellow to green tremolite-rich rock from Longxi, Wenchuan in Sichuan Province, China that was discovered in the 1940s and formerly marketed as Guanxi Jade and Xu Jade. Some material shows cat's-eye effect.

Oriental jade Old trade name for nephrite jade

peach blossom jade pink rock essentially composed of tremolite with Mn-bearing pink zoisite and minor amounts of muscovite, feldspar, diopside and prehnite.

Polar jade green nephrite jade from the Polar mine, British Columbia, Canada.

Russian jade nephrite jade from the Sayan Mountains, near Lake Baikal, in central Siberia and for pyroxene jade from Pusyerka and Abakan in Russia.

Siberian jade medium-green to white nephrite jade from Siberia (Sayan and Dzhida), Russia, sometimes similar to nephrite from Xinjiang, China. It was extensively used by Russian

artisans of that period (e.g. Carl Fabergé).

Styrian jade nephrite jade from the Mur river, in Styria, Austria, locally used in the Late Neolithic period for the production of flat axe heads.

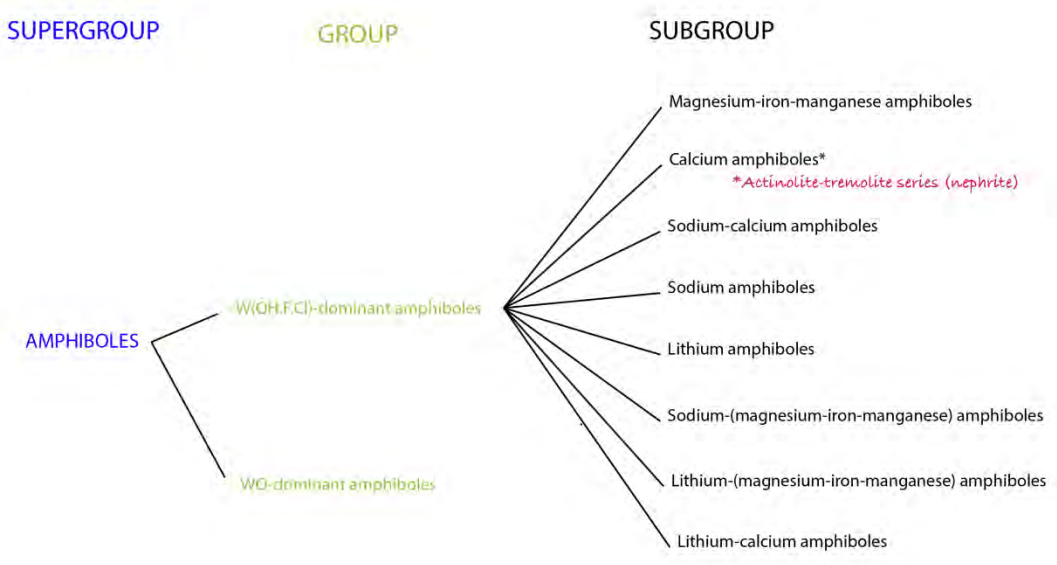
tomb jade burial pieces of nephrite jade with yellow to brownish colour that was apparently caused by the prolonged contact of the material with a decaying body. It is found in old graves or tombs, hence the name. Same as grave jade.

Xu jade Old trade name for Longxi jade, a massive semi-transparent yellow to green tremolite-rich rock from Longxi in Sichuan Province, China, that was discovered in the 1940s and formerly marketed as Guanxi jade and Nanyang jade. Some material may show a cat's-eye effect.

APPENDIX D – Amphibole & Pyroxene Nomenclature

6.22 Amphibole

An extensive and complex group of minerals presently divided into a group/subgroup/root-name hierarchy. The amphibole group remains under study with the most recent, IMA-approved nomenclature being published in 2012 (Hawthorne 2012).

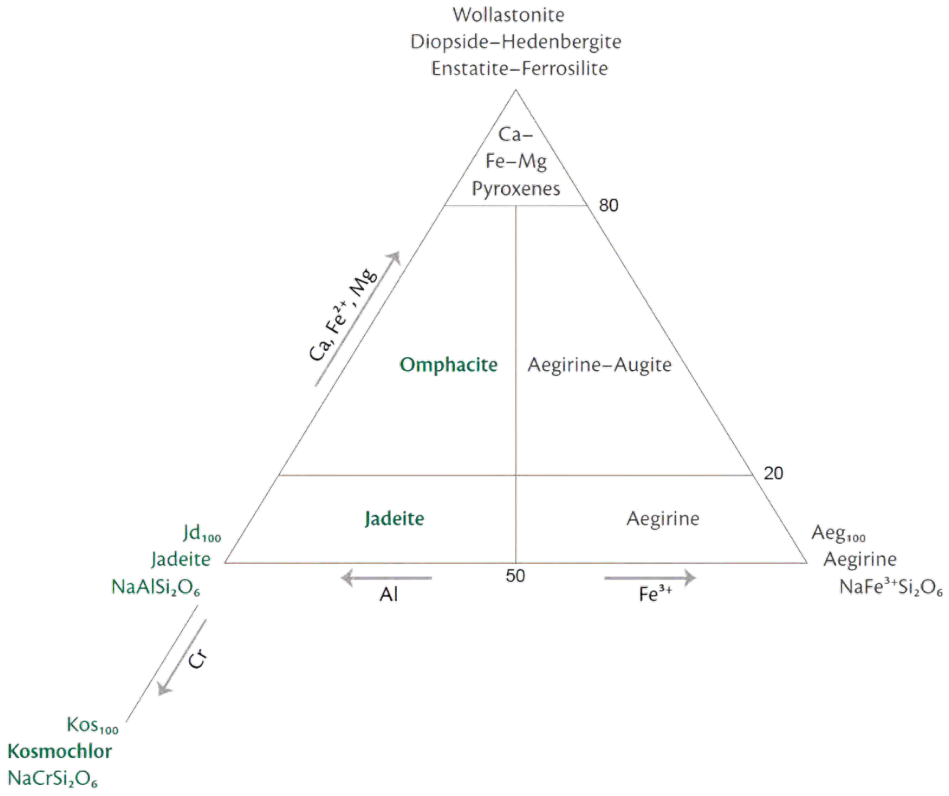


The supergroup-group-subgroup hierarchy of the amphiboles from (Hawthorne 2012).

6.23 Pyroxene

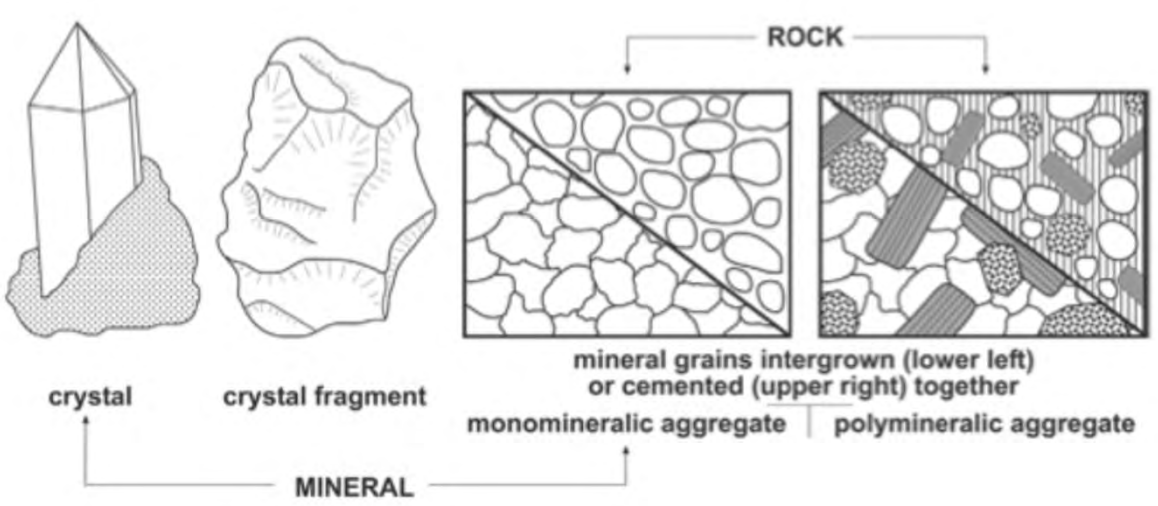
The pyroxenes (Px) are a group of important rock forming inosilicate minerals found in many igneous and metamorphic rocks. They share a common structure consisting of single chains of silica tetrahedra. Pyroxenes that crystallize in the monoclinic system are known as clinopyroxenes and those that crystallise in the orthorhombic system are known as orthopyroxenes.

The name *pyroxene* is derived from the ancient Greek words for 'fire' and 'stranger'. Pyroxenes were so named due to their presence in volcanic lavas, where they are sometimes found as crystals embedded in volcanic glass; it was assumed they were impurities in the glass, hence the name meaning "fire stranger". However, they are simply early-forming minerals that crystallised before the lava erupted.(N. Morimoto, Fabries, J., Ferguson, A.K., Ginzburg, I.V., Ross, M., Seifert, F.A., Zussman, J., Aoki, K., Gottardi, G. 1988a)



Clinopyroxene classification diagram. Note that omphacite is not an end member, but is a mineral species because its structure differs slightly from its related clinopyroxene members. Fei cuì is not a mineral species, but a rock consisting mainly of jadeite, omphacite and/or kosmochlor. (after Morimoto et al., 1988 and Liu et al., 2024).

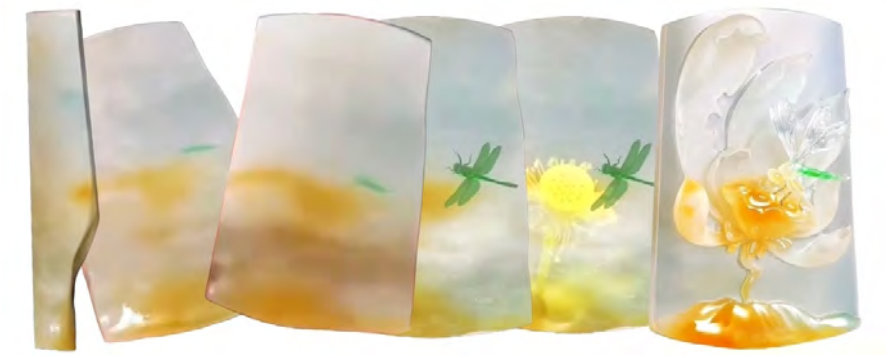
APPENDIX E – Distinction between Mineral and Rock.



From: Harrell, J.A. (2025) Archaeological Stones and Their Macroscopic Identification. Oxford: Archaeopress, 284 pp.;

APPENDIX F – Craftmanship.

The evaluation of craftmanship in fei cui finished products may be approached from three complementary perspectives: raw material application, design, and processing techniques. The two linked videos below demonstrate the perspectives.



https://www.dropbox.com/scl/fi/b0876bpyazi5dvfzlydr6/craftsmanship-5..mp4?rlkey=eqpp6cgq3l10t1ihvge8u8t0f&dl=0

This video clip describes designing a jade carving by responding to the stone's natural features. The front of the jade piece looks regular and well-shaped, but the side is actually uneven in height. t is 11 mm thick, with areas of yellow, green "silk"-like veins, and a large patch of white "cotton" texture. Combining the colours, texture quality, and upright shape gives an overall dignified and elegant feeling. Treating the green silk as the main area, they design a dragonfly with spread wings flying low, landing on a golden lotus seedpod. Behind it, white lotus leaves sway in the wind, with yellow-brown lotus leaves below, so that the lotus, dragonfly, seedpod, and leaves "resolve" the height differences in the material.

https://www.dropbox.com/scl/fi/liz2sn9jn5bp1idt51h3o/craftsmanship-3..mp4?rlkey=ehblv64waws5li14i5jydqu5o&dl=0

This video clip discusses how to design a jade carving around natural flaws and colours in the stone. The speaker notes that from this angle you can see oxidation cracks that do not fully penetrate, and they want to "challenge" an integrated design instead of cutting around them. The idea is to use a female figure as one main subject and another main subject beside her, making use of the thin edge "stone skin" and the scattered green patches. Bright colours are preserved and treated to show richer tones rather than being removed. The design concept is to extend the theme into "Xuan Nv and Xuan Feng": the white area on the left becomes a beautifully dancing Xuan Nv, while the coloured parts form the body and tail feathers of the Xuan Feng, so the two motifs complement each other.

Courtesy of NGTC

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Beauty on the Beach by Master Wu Desheng. Black nephrite jade with graphite from Hetian, Xinjiang Province, China. This single carving displays virtually everything one needs to know about yu as an artistic medium. Wu's masterful use of the characteristics of the original boulder demonstrate what separates yu art from almost any other sculptural medium. As the Chinese say: "In carving yu, one cannot add, only take away." 19.5 × 11.5 × 9.5 cm. Photo: Zou Liu

Courtesy of NGTC

Material application

Material application begins with understanding the fei cui itself and working with the fei cui's inherent characteristics to reveal its natural beauty and enhance its value. Evaluation considers the fei cui as a whole, taking into account its overall quality, form, colour, transparency, texture, and clarity.

Overall quality

Overall quality is considered how effective use of the material's inherent characteristics, reveal its natural beauty, and enhance its value. How this is achieved varies with material quality. When the material is of high quality, craftsmanship tends to be restrained. Minimal waste and refined execution allow the stone's natural appeal to remain the focus. With medium-grade material, design and technique play a more active role. Thoughtful composition and skilled methods—such as relief or full-round carving—are used to draw out colour, texture, and clarity. When material quality is lower, emphasis shifts toward overall concept and visual impact, relying less on fine detail and more on creative expression to balance practical limitations. These approaches are not fixed categories, but reference points for evaluating how material is used.

Example: of the application of lower-grade material

Courtesy of NGTC

Form

Form follows naturally from the material. The subject and composition are developed in response to fei cui's existing shape, whether natural or pre-cut. Evaluation considers whether the final form supports the chosen theme and meets aesthetic expectations. This includes sensible use of the original dimensions, selective removal of excess material to clarify the design, and shaping that allows form and content to merge into a coherent whole.

Example: Form follows naturally from the material

Colour

Colour is assessed through how it is preserved, presented, and integrated. Evaluation considers whether coloured areas retain their quality and integrity, whether valuable colours are placed prominently and used effectively, and whether the design adapts to the colour in a way that supports the theme and artistic intent, allowing colour to contribute vitality and visual interest.

Courtesy of NGTC

Courtesy of the Beijing Boguan International Auction Co., Ltd

Valuable colours are placed prominently and effectively

Colour is harmoniously integrated with the overall theme and artistic intent of the piece. (bottom: finished work; top: rough material)

Courtesy of NGTC

Transparency

Transparency is considered in close relation to texture and clarity. Finer texture and higher clarity often allow greater transparency. In achromatic material, transparency may express purity and crystalline clarity, while in chromatic material it interacts with colour to create depth and vibrancy. Evaluation focuses on whether transparency is appropriately revealed and whether factors such as thickness, curvature, and colour placement support the desired optical effect.

Texture

Texture gives the material its character. Different textures create different visual and emotional impressions, from refined and elegant to bold and expressive. Evaluation considers whether the texture aligns with the intended theme, form, and overall atmosphere of the piece.

Clarity

Clarity affects both appearance and structural stability. Visible cracks, especially open fractures, may interrupt visual continuity and compromise durability. Effective material application takes these characteristics into account when selecting forms and themes. Through flaw removal, careful avoidance, or deliberate integration, limitations may be managed in ways that support expression while maintaining the integrity of the finished work.

Design

Design gives direction to material and turns form into meaning. Design evaluation considers form, composition, theme, artistic conception, and meaning and symbolism, focusing on how these aspects interact to shape both visual expression and understanding.

Form design addresses how the subject is physically presented. It may be viewed through three complementary aspects. *Accuracy* concerns faithful representation of form, proportions, and physical presence. *Expressiveness* refers to the ability of a static form to suggest movement, vitality, or character. Beyond these, higher-quality designs convey *spiritual resonance*, where form carries emotion, narrative, or symbolic depth—often described as “life within the stone.”

Examples of a craftsman's use of texture and clarity

Courtesy of NGTC

Not your mother's nephrite.
This piece is just one stunning example of the modern carving taking place in China today.
Carvings such as this in mutton-fat hetian yu from Master Fan Junmin may sell for a million dollars or more.

Composition organises visual elements within a limited space to create a coherent and engaging whole. *Balance* creates a sense of stability and visual harmony, while *contrast and harmony* use variation and coordination to enhance visual interest and reinforce the theme. *Rhythm and flow* guide visual movement through repetition, transition, or progression, and *holistic unity* ensures that every detail supports the overall structure and artistic intent of the work.

Theme refers to the central idea or message expressed in the work. Feicui pieces are valued not only for material beauty, but also for the clarity of the idea they express. Effective designs present a focused, coherent theme, expressed in a positive manner and consistently supported by visual elements.

Artistic conception concerns the experiential quality created by the work. Through the interaction of what is explicitly shown and what is subtly suggested, tangible form and intangible atmosphere are brought together. Within a limited physical space, artistic conception allows the design to evoke broader impressions—such as landscape or reflection on life—inviting contemplation beyond literal representation.

Meaning and symbolism relate to the specific ideas and values communicated through recognisable visual elements. These are commonly expressed through decorative motifs such as inscriptions, geometric patterns, animals, plants, or human figures. Rooted in cultural traditions, such motifs convey meaning through symbolism, metaphor, phonetic association, or references to traditional stories and legends, providing a clear and culturally legible framework for interpretation.

Processing techniques

In fei cui craftsmanship, a long-standing principle holds that the value of a piece depends more on workmanship than on material alone. Processing techniques therefore play a critical role in transforming material potential into a finished expression. Evaluation focuses on two key stages: carving (forming) and polishing (finishing).

Carving (forming) translates the design concept on the material into a three-dimensional form. Evaluation considers whether carving follows established practices, whether form, proportions, and structure align with the intended design, and whether technical execution is precise enough to express the design clearly. Effective carving is reflected in clear contours, well-defined layers, smooth and confident lines, accurate transitions between points and surfaces, appropriate treatment of details. These qualities give the work a vivid form, a stable structure, and a clearly expressed theme.

Polishing (finishing) is the final major step in processing, intended to remove surface unevenness and enhance smoothness, brightness, and overall visual refinement. Evaluation considers the suitability of the polishing method and the quality of the finished surface. Matte finishing produces a refined surface with subdued sheen, while gloss finishing uses finer abrasives to achieve a smooth, lustrous effect. Different materials and design themes may call for different finishing methods. A well-polished surface appears smooth, even, refined, and gently lustrous, with consistent brightness throughout the piece.

APPENDIX G – CAUTION the perpetration of dishonest schemes or attempted frauds).

Over what may be centuries there have been numerous reported instances of incorrectly described “gem materials” that prey upon the gullibility or greed of those without gemmological knowledge. These include describing materials as historically important (ancient) and being exceedingly rare and therefore (by implication very valuable), when in fact they are merely imitations, synthetics or very low quality treated materials.

Fei cui, with its long history, particularly in the East, has been misrepresented in in various manners over the years and in today’s market it is not unknown for resin impregnated and dyed fei cui to be described as the finest quality historic gems by the uneducated, ignorant or unscrupulous, who prey on the unwary.

An example scenario

So called “Ming (1368–1644) and Qing (1644–1912) dynasties jadeite jade/fei cui” (**明清老翡翠**) has in recent times been featured at expositions in Hong Kong, in auction claims, and across social/video platforms, where the material described and imaged is of an unnatural colour, modern appearance and appears to be impregnated and dyed. The promotion of such items often with exaggerated claims surrounding “Ming/Qing (or other dynasties) old jadeite jade/fei cui” is driven by mistaken/ignorant marketing and, in some cases, deceptive practices.

Scientific Verification: Well established gemmological laboratories are equipped to identify bleached and impregnated as well as dyed jadeite jade with, amongst other things, infrared spectroscopy.

Expert Warnings: Reputable institutions emphasize that authentic Ming/Qing jadeite jade/fei cui is extremely rare, typically housed in museums or major collections—not circulating in expos, online platforms, or private auctions.

APPENDIX H – LMHC Information Sheet # 11

(LMHC 2025)

LMHC Information Sheet # 11

Jade and related Materials

- **Definitions**
- **Suggested Testing Procedures**
- **Report wording**

Members of the Laboratory Manual Harmonisation Committee (LMHC) have standardised the nomenclature that they use to describe nephrite jade, jadeite jade, omphacite jade, and kosmochlor jade.

Definitions

Jade is a trade name that encompasses aggregates of fibrous or granular crystals primarily composed of jadeite, omphacite, kosmochlor, or nephrite.

Nephrite is a rock mostly consisting of densely interlocked micro- to cryptocrystalline fibres of the actinolite-tremolite solid solution series (amphibole group). The ideal chemical formula is $Ca_2(Mg,Fe)_5Si_8O_{22}(OH)_2$. Gem-quality nephrite displays colours commonly ranging from white to deep green, but can also be brown or black, and is known as nephrite jade.

Jadeite is a pyroxene mineral and forms solid solutions with other pyroxene members such as augite and diopside, aegirine, omphacite and kosmochlor. Gem quality 'jadeite jade' is not a single crystal but a rock consisting of aggregated fibrous or granular crystals of jadeite and may contain small amounts of various other minerals. Its colour commonly ranges from white through pale green to deep green but can also be blue-green, dark green to black, and other rare colours of pink, lavender varieties. Mineralogically, the ideal chemical formula of jadeite is $NaAlSi_2O_6$.

Omphacite is a member of the pyroxene group with the chemical formula (Na, Ca) (Al, Mg, Fe) Si_2O_6 and is commonly present not as a single crystal but as an aggregate (rock). Gem-quality omphacite displays a pale green, deep green, black or nearly colourless colour and may be called omphacite jade.

Kosmochlor is a green chromium and sodium rich pyroxene with the ideal chemical formula $NaCrSi_2O_6$. and is commonly present not as a single crystal but as an aggregate (rock). Gem-quality kosmochlor displays a dark green to nearly black colour and may be called kosmochlor jade.

Pyroxenes have a solid solution reaction and each coexists or aggregates to make up a rock. See figure 1.

Fei Cui (翡翠) is a historic Chinese name (pronounced *fay choy*) for a structurally tough ornamental aggregate composed solely or principally of any of the following or any combination of the following jadeite, omphacite, and kosmochlor, forming jadeite jade, omphacite jade or kosmochlor jade, and potentially a small amount of other minerals.

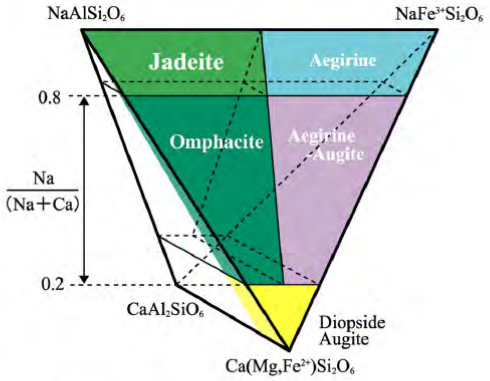
Suggested Testing Procedure

The complexity of jade and its related materials is related to the fact that they are aggregates (rocks) which may contain several mineral phases. For a correct identification, it is suggested to take into account:

- The visual aspect of the stone (e.g. colour homogeneity, texture)
- Classic gemmological testing (e.g. refractive index, specific gravity)
- Chemical analyses
- Absorption spectroscopy (UV-Vis-NIR)
- Structural analyses (FTIR and Raman spectroscopy)

And optionally, any further established analytical method for geological samples.

Figure 1. Pyroxene classification by chemical composition



Report wording

Identification:	
Group:	**amphibole**
Species:	**(natural)[1] actinolite-tremolite**
Variety:	**(colour)[2] nephrite (jade)[1]**
Identification:	
Group:	**pyroxene**
Species:	**(natural) [1] (jadeite** or **omphacite** or **kosmochlor)[3]**
Variety:	**(colour)[1] (jadeite jade[1]** or **omphacite jade** or **kosmochlor jade)[3]**
Further information:	For jadeite jade, omphacite jade or kosmochlor jade, a comment may be added, such as: (May also be called Fei Cui in the Asian trade)[1]

Any nephrite jade, jadeite jade, omphacite jade and kosmochlor jade that does **not show indications** of having undergone modification through the impregnation with colourless or near colourless[4] wax, resin, or any other agents shall be described as,

none or **(natural colour), no indications of impregnation**[5]
for jadeite jade, omphacite jade and kosmochlor jade only: **(known in the trade as 'A-jade')**

Any nephrite jade, jadeite jade, omphacite jade and kosmochlor jade that **shows indications** of having undergone modification through bleaching and the impregnation with colourless or near colourless[4] wax, resin, or any other agents shall be described as,

(resin/wax)[1] impregnated
for jadeite jade, omphacite jade and kosmochlor jade only: **(known in the trade as 'B-jade')**

Any nephrite jade, jadeite jade, omphacite jade and kosmochlor jade that shows indications of having undergone modification through bleaching and the impregnation with **coloured** resin, or any other coloured agents shall be described as,

dyed and impregnated
for jadeite jade, omphacite jade and kosmochlor jade only: **(known in the trade as 'B+C-jade')**

Any nephrite jade, jadeite jade, omphacite jade and kosmochlor jade that shows indications of having **fissures/fractures filled with coloured** agents shall be described as,

Dyed
for jadeite jade, omphacite jade and kosmochlor jade only: **(known in the trade as 'C-jade')**

1 Wording and text in parantheses is optional.
[2] Optionally insert the colour of the stone being examined particularly if not described elsewhere on the report.
[3] Insert the recognized species name
[4] When viewed in bulk, e.g., in a bottle, oils and resins may appear to have colour. However, when viewed in thin films, as in fissures, the appearance may be near colourless.
[5] The presence of light surface waxing need not be declared.

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