GRS – 引领全球业界标准

GRS – Pioneering Global Industry Standards

GRS GEMRESEARCH SWISSLAB

“在宝石报告众多评级项目之中，‘颜色’可谓少数最终消费者能自行判断的元素。为此，GRS开创一个嘉许颜色的评级制，协助买家更容易选出心头好。”

–阿道夫·珀勒第博士

“Color is one of the few grading factors on a gemstone report that the end-users can judge for themselves. GRS helps by providing its own subjective interpretation by granting awards for colors.”

Dr. A. Peretti

纽约 | 巴黎 | 梅根 | 科伦坡 | 曼谷 | 香港

NEW YORK | PARIS | MEGGEN | COLOMBO | BANGKOK | HONG KONG

GRS 走向国际

GRS (GemResearch Swisslab) 于1996年由现任总裁及首席鉴证师阿道夫·珀勒第 Adolf Peretti 博士创立。实验所成立之初名为GRL (GemResearch Laboratory) 后易名为今天的GRS。凭借其专业诚信，GRS的业务已拓展至世界各地，于泰国、斯里兰卡、香港、法国及美国设立分部。

GRS 评色名词及评级制自推出以来，赢得各界的认同和支持，至今已成为宝石颜色评级的国际标准，不单是消费者选购宝石时赖以作准的指标，更广为知名拍卖行、实验室、批发商及零售市场所采用。

当年GRS率先以一些标志性的颜色来称呼达指定评级的宝石、确立崭新而统一的评色机制，目的是厘清业界各种含糊相似的术语，为最终消费者提供清晰、简洁、易明的描述；最终，GRS 评色制发展成国际宝石业一致推崇的常规准则。GRS以搜罗多年、各色齐备的多套母石，作为评色的基准，由此定出各个颜色级别及专用评色名词；GRS 并拥有这些评色名词的商标。

本小册子阐释了过去20年来GRS最常用、也最受宝石业界推崇的GRS评色名词，带领读者探索与“GRS型”评色名词相关的历史、定义、刊物及研究。

GRS – Pioneering Global Industry Standards

GRS (GemResearch Swisslab) was established in 1996 by its current CEO and Chief Gemologist, Dr. A. Peretti. Originally called GRL (GemResearch Laboratory), the laboratory was renamed GRS soon thereafter. The Swiss laboratory's success allowed Dr. A. Peretti to develop more independent GRS laboratories in Thailand, Sri Lanka, Hong Kong (S.A.R.), France and the USA.

GRS color terms truly went global and have evolved into an international standard. Our color system was embraced by the end-users with standing ovations and utilized in all levels of the trade, including renowned auction houses, laboratories, wholesale, and the retail market.

GRS pioneered the discipline of creating a different approach to describing color terms. In doing so, GRS has reshaped the gemstone industry with regard to color communication. The primary goal has always been to create simple, clear expressions without vague terms that might confuse the final consumer. GRS bases its color grading system on comprehensive master stone sets, allocating the color grade range according to these guidelines. These color terms have been trademarked by GRS.

This booklet is dedicated to explaining the most popular GRS color descriptions that have been used by GRS and the global gemstone community over the past two decades. This overview explores the heritage, definitions, publications, research and grading standards behind GRS-type colors.

GRS 评色名词释义

“鲜艳”(Vivid):GRS率先将此词引入评色机制,描述饱和度最高、无多馀暗色及低亮度的宝石色泽。

“鲜艳”一词可应用于红、粉红、蓝、绿等各种颜色之上;而部分达“鲜艳”级别的颜色,会额外嘉许为指定的“GRS型”评色名词,如“鸽血红”或“皇室蓝”。

GRS COLOR TERMS Explained

“Vivid” is a term GRS introduced to the field of colored gemstone communication to emphasize intensive colors that have the highest saturation without being excessively dark, demonstrating a minimum quantity of brilliance.

“Vivid” can be applied to a variety of colors; for example, red, pink, blue and green. Certain vivid colors have been more specifically awarded with GRS-type color terms like “pigeon blood” or “royal blue”.

GRS型
“鸽血红”
红宝石
GRS-type “PIGEON BLOOD” Ruby

GRS型
“皇室蓝”
蓝宝石
GRS-type “ROYAL BLUE” Sapphire

GRS型
“矢车菊蓝”
蓝宝石
GRS-type “CORNFLOWER” Sapphire

“老坑／穆索绿附录”
祖母绿
“OLD MINE / MUZO GREEN APPENDIX” Emerald

GRS型
“晨曦”
帕帕拉夏蓝宝石
GRS-type “SUNRISE” Padparadscha Sapphire

GRS型
“夕阳”
帕帕拉夏蓝宝石
GRS-type “SUNSET” Padparadscha Sapphire

GRS型
“蜜糖色”
金绿宝石
GRS-type “HONEY-COLOR” Chrysoberyl

GRS型
“帕拉伊巴色”
碧玺
GRS-type “PARAIBA-COLOR” Tourmaline

评色色标更新

通过公开讲座、业界展览会及研讨会上取得的宝贵回馈，GRS进一步细分现时最常见评色名词“GRS型鸽血红”和“GRS型皇室蓝”，创立两个全新的色调饱和度子级别。这两个新增级别扩大了旧有评色名词的涵盖范围，助力各界更准确地了解宝石的颜色。

新评色机制于2017年年末生效。附表列出新增的“艳至深”和“鲜至艳”子级别。

新子级别分别适用于宝石报告中获“GRS型鸽血红”、“GRS型皇室蓝”或老坑／穆索绿附录的红、蓝或绿宝石。

红宝石

鲜红至艳红（“GRS型鸽血红”）
艳红（“GRS型鸽血红”）
艳红至深红（“GRS型鸽血红”）

蓝宝石

鲜蓝至艳蓝（“GRS型皇室蓝”）
艳蓝（“GRS型皇室蓝”）
艳蓝至深蓝（“GRS型皇室蓝”）

绿宝石

鲜绿至艳绿（老坑／穆索绿附录）
艳绿（老坑／穆索绿附录）
艳绿至深绿（老坑／穆索绿附录）

Update of GRS Color Scale

Invaluable feedback collected from the trade via GRS public seminars, at trade shows and symposiums has allowed GRS to further subdivide the field of color communication into terms like GRS-type “pigeon blood” or GRS-type “royal blue” and introduce two new transitional color grades. These additional classifications provide a more thorough understanding of the gemstone's exact color by expanding their categories.

This new system went into effect in late 2017. The simplified graph (opposite page) represents the changes with regards to the new color grades of “vivid to deep” and “intense to vivid”.

The changes are applied to rubies, sapphires and emeralds resulting in the following color subcategories for the GRS-type terms “pigeon blood” and “royal blue” as well as for the Old Mine / Muzo green appendix.

Rubies

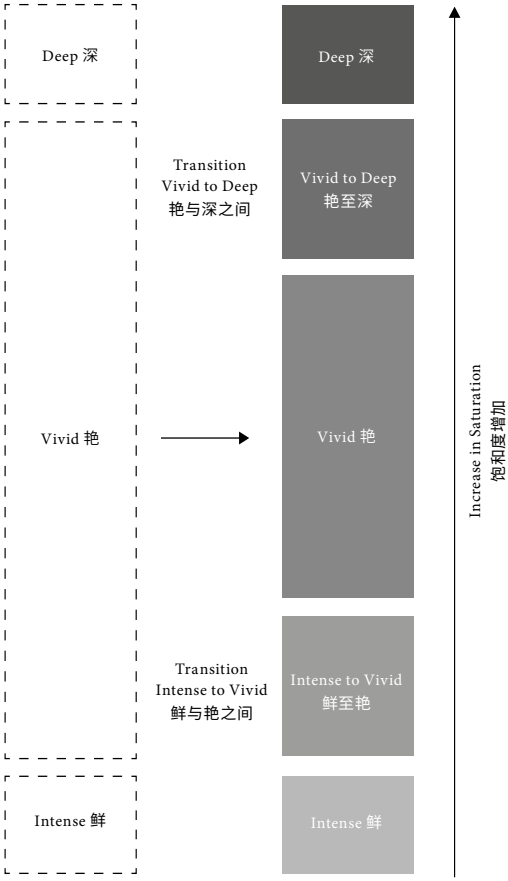
intense to vivid red (GRS-type “pigeon blood”)
vivid red (GRS-type “pigeon blood”)
vivid to deep red (GRS-type “pigeon blood”)

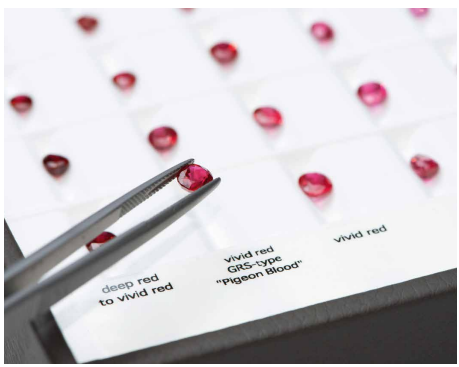
Sapphires

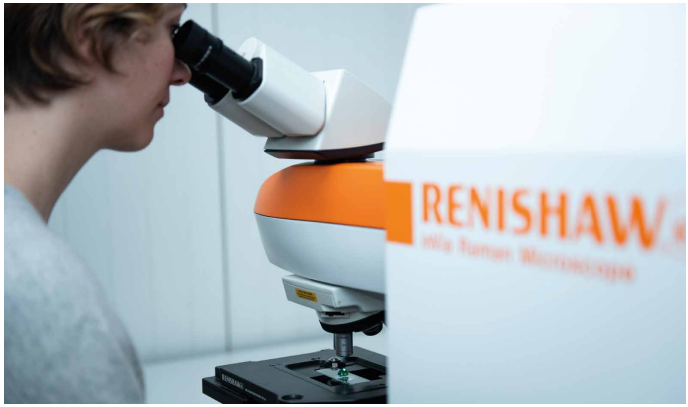
intense to vivid blue (GRS-type “royal blue”)
vivid blue (GRS-type “royal blue”)
vivid to deep blue (GRS-type “royal blue”)

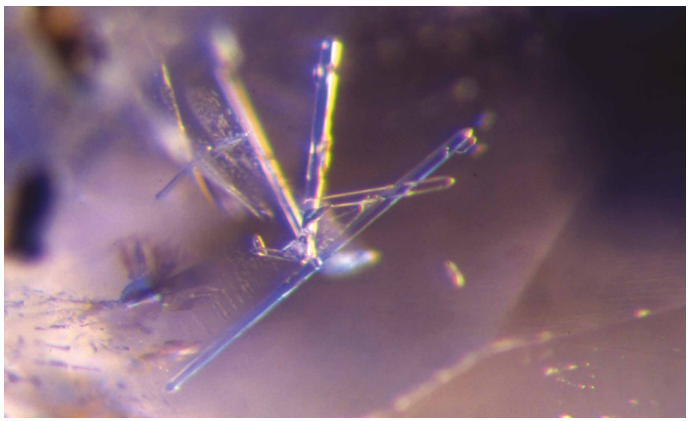
Emeralds

intense to vivid green (Old Mine/ Muzo Green Appendix)
vivid green (Old Mine/ Muzo Green Appendix)
vivid to deep green (Old Mine/ Muzo Green Appendix)


Deep 深
Vivid 艳
Intense 鲜
Transition
Vivid to Deep
艳与深之间
Transition
Intense to Vivid
鲜与艳之间
Deep 深
Vivid to Deep
艳至深
Vivid 艳
Intense to Vivid
鲜至艳
Intense 鲜
Increase in Saturation
饱和度增加


deep red
to vivid red
vivid red
GRS-type
"Pigeon Blood"
vivid red





上：GRS人员以先进的Renishaw微拉曼仪，分析宝石的内含物。

下：“喀什米尔” 乃举世闻名的蓝宝石产地，来自喀什米尔的蓝宝石价值非凡，因此判断宝石是否产自喀什米尔时必须加倍谨慎。作为少数曾亲身勘察喀什米尔矿区的宝石学家之一，珀勒第博士30多年来收集及研究无数样本，是今天国际公认的喀什米尔蓝宝石权威。

Top: Inclusion analysis using a Renishaw micro-Raman system.

Bottom: Prized as one of the most prominent and important example of colored gemstone value factor contributor, the “Kashmir” origin determination call must be dealt with the highest level of caution. Dr. Peretti is one of the very few gemologists who visited the Kashmir mine to collect first hand experience. He has collected and studied samples for over 30 years. Due to this knowledge gained, Dr. A. Peretti has earned the ranking as one of the most knowledgeable industry experts for Kashmir sapphires.

产地判断

宝石产地的判断，于过去20年越趋重要。GRS实验所之所以成为产地辨识的全球领先者，全赖检测中包含三大重要部分：（一）汇集庞大的宝石参考样本；（二）综合的专业研究知识，及（三）先进分析测试方法。

GRS投放大量公司资源，从矿区获取宝石参考样本，当中不乏价值非凡的馆藏级样本。我们藏品丰富齐全的样本库，加上阿道夫·珀勒第博士累积逾30年的独家宝石学与科学研究、评估和专家诠释，成为了弥足珍贵的参考信息庫。这些专业知识并供GRS全球分部使用，确保信息库不断完善。

先进的分析测试方法，是我们产地判断的第三元素。业界一般根据先进检测法所得的数据，对宝石的产地一锤定音。但GRS坚信唯有配合综合专业研究知识和庞大的参考样本库，三管齐下，方能准确辨别宝石产地。

产地判断也有其限制。于同一地理区域、在相类似形成条件下孕育出来、却因人为的疆界而变成“不同”产地的宝石，GRS或会将它们归纳在一起，例如判断产地为“喜马拉雅山脉*”并附加评语：“潘杰希尔（阿富汗）／斯瓦特（巴基斯坦）”。

如欲确保宝石产地判断无误，请务必到获得认可的GRS实验所办理GRS宝石报告。

Origin Determination

Origin determination of gemstones has gained enormous significance over the past two decades. GRS Laboratories established itself as a global leader for origin determination through its application of three important components: gemstone reference collection, compounded research expertise and state of the art analytical testing methods.

GRS has invested substantial corporate funding into the acquisition of gemstone reference samples from mining areas, including museum-grade high-value examples. This exhaustive sample library is coupled with Dr. A. Peretti's gemological and scientific research of proprietary evaluation and expert interpretation spanning over 30 years. This accumulation of know-how is safeguarded and distributed within the GRS Laboratory organization.

Advanced state-of-the-art analytical testing methods form the third component. It is widely acknowledged that advanced analytical testing methods deliver the single most conclusive data towards origin determination. They are only considered conclusive however, when paired with the compounded know-how and an extensive gemstone reference collection.

Origin determination has its limitations. Gemstones that are formed in the same geographical region and under equal or similar formation criteria but are separated by man-made borders may be grouped together. For example, the origin determination for emeralds from Afghanistan and Pakistan will be combined to “Himalayan Mountains*” with the additional comment: “Panjshir (Afghanistan)/Swat Valley (Pakistan)”.

Request the original documentation and insist on a GRS Gemstone Report for complete assurance on origin detection.

上：进行高科技检测的情况。图中样本是一块经高温高压处理、已剖开的蓝宝石，上面清晰可见宝石外缘有明显的颜色浓缩痕迹。我们以极精密的微傅里叶变换红外光显微镜，于宝石面上进行测量（图中的红点）。

下：GRS人员正操作一台微傅里叶变换红外光显微镜。

Top: Example of required application of high-tech equipment. Illustration shows single spot measurements on a sliced PHT-treated (pressure, high temperature) sapphire using a highly sophisticated micro-FTIR microscope. The image clearly reveals the potential for color concentration along the outer rim of the sapphire.

Bottom: A micro-FTIR microscope in use.

侦测优化处理

多年来，侦测宝石优化处理一直是GRS的主要专业范畴。世界各地的GRS实验所均配备尖端分析仪器，包括光谱仪、激光及探测仪如能量色散X射线萤光光谱仪、紫外-可见分光光谱仪、傅里叶变换红外光光谱仪、激光诱发解离光谱仪、光激萤光光谱仪、拉曼光谱仪（并配以拉曼共轭焦显微镜，以辨识宝石的内含物），以及一家设于瑞士苏黎世联邦理工大学内的激光剥蚀-电感耦合等离子质谱法研究所。

为逃过鉴定所法眼，宝石优化处理技术层出不穷。泰国现时是优化处理的中心，GRS遂于曼谷设立分部，于前线掌握处理手法的走向。凭藉严谨的工序、丰富的专业知识和系统化的高科技检测手法，GRS往往能率先发现新的处理手法，并第一时间通报业界。

如欲取得全面的宝石优化处理披露，请务必到获得认可的GRS实验所办理GRS宝石报告。

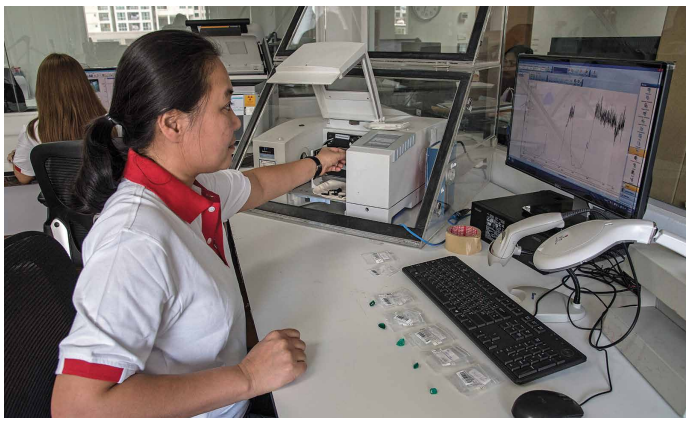
Treatment Detection

GRS Laboratories has played a key role in treatment detection for decades. All GRS Laboratories are fully equipped with state-of-the-art advanced analytical instruments. These include spectrometers, lasers and detectors such as ED-XRF, UV-Vis-NIR, FTIR, LIBS, Photoluminescence, Raman with additional intra-company located confocal Raman inclusion-microscopes to identify internal gemstone inclusions and a laser ablation research facility (LA-ICP-MS) strategically located at the Swiss Institute of Technology (ETH) in Zurich, Switzerland.

Thailand lies at the forefront of new treatment development. Hence the GRS Thailand laboratory in Bangkok's strategic locale is on the pulse of treatment detection benefiting the gemstone industry.

Following strict work procedures, experience gained and a systematic high-tech screening approach to gemstone examination within GRS Laboratories has established GRS as the first to alert the industry on numerous treatments.

Request the original documentation and insist on a GRS Gemstone Report for complete assurance on treatment disclosure.



上：一颗原为 “无” 处理级别的祖母绿，有肉眼可见的净度表徵（空裂隙），或于鉴定后被处理，所以尽管处理后宝石更透彻亮丽，但仍被改评为 “轻至中度” 经处理级别。

“非优化净度特徵” 以目测可见的瑕疵为评级指标，例如 “非常轻度”、“轻度” 或 “明显”。“明显” 级别的宝石，带有肉眼显而易见的白色或非因优化处理造成的裂缝；除了不会获得任何GRS型颜色评级外，还会附注以 “颜色评级不适用”。

下：GRS人员利用傅里叶变换红外光光谱仪，检测祖母绿有否经充填处理。

Top: An emerald without treatment (CEO: None) displaying clearly eye-visible clarity features (empty cracks) that may be treated post-testing, resulting in a treated (CEO: Minor to Moderate), though cleaner and more brilliant appearing stone.

Non-enhanced clarity features are graded in accordance to their visual relevance: "very minor, minor and prominent". When graded “prominent", obvious white/untreated areas of stones cracks are visible. Such stones will not qualify for GRS-type colors and will be marked with the additional comment: "Color grading not applied”.

Bottom: Emeralds being measured using a FTIR spectrometer for detecting the presence of various possible fillers.

处理分类

历年来GRS一直引领业界，不断创立及推行自家宝石处理法分类评级。这些分类系统和术语获其他鉴定所广泛采用后，或有被修饰或用上同义词的情况出现，但我们仍拥有各个GRS原创术语的所有权。有关GRS分类术语的译义，我们建议只参考GRS宝石报告，以保准确。

如欲确保处理分类准绳，请务必到获得认可的GRS实验所办理GRS宝石报告。

附加评语

宝石商人都知道业界诈骗手法繁多，宝石有可能在进行鉴定后才被“后期加工”。这些修改通常包括为祖母绿“再上油”及以低温处理红宝石。GRS研究显示，不少买家以至专业买手都没提防这些“鉴定后处理”，令奸商有机可乘。

2015年，GRS发现实验所收到一大批处理程度与原本报告评级不符的祖母绿，且数目明显上升，估计是有人有系统地于鉴定前清洗宝石，待取得报告后才再作处理。针对此问题，GRS推行了一项新举措：若宝石带有肉眼可见的净度特徵（天然裂隙），报告中将增设“附加评语”以列明鉴定时已存在的净度特徵。虽然不管哪一个评级的宝石都有可能被“动手脚”，但GRS建议持有“无”或“不明显”评级祖母绿报告及“无热处理”刚玉报告的人士，如有疑问，应将宝石送往本所再作检测、获取一份更新报告。

Treatment Classification

GRS Laboratories takes pride in the creation and roll-out of industry-defining treatment classification grades. Those classifications have since become adapted and modified, including an attempt towards harmonization by other laboratories using equivalent or modified names to classify such. While names and systems might be reminiscent of those created by GRS, the original nomenclature remains proprietary to GRS. For complete accuracy trust only the GRS report for the GRS grading terms.

Request the original documentation and insist on a GRS Gemstone Report for complete assurance on treatment classification standards.

Additional grading comments

Gemstone dealers understand the risk of post-testing changes and tampering with gemstones. A commonly known example of this would be post-testing “re-oiling” of emeralds and low-heat treatment of rubies. GRS’ research indicates that an unwary consumer and even trade specialists are often not aware of these treatments, opening the door to fraudulent activities.

In 2015, GRS Laboratories observed an increased number of emeralds returning to the laboratory with significantly more treatment grades than the original testing result indicated GRS concluded that these emeralds were routinely cleaned before laboratory testing and then treated afterward. So, GRS introduced a policy to grade and flag all gemstones with apparent eye-visible clarity features (untreated fractures) with an additional comment, thus highlighting their presence at the time of testing. While any gemstone grade can be tampered with, GRS Laboratories recommends holders of critical grades such as emeralds graded “none” and “insignificant” and unheated corundum acquire an updated report when in doubt.

GRS评级用词/GRS Grading Terms

大事年表/Timeline

1999 - H, H(a), H(b), H(c), H(d)

1999 – H、H(a)、H(b)、H(c)、H(d)

GRS创立热处理残留物评级制，旨在恢复红宝石业界对热处理红宝石的信心。这个考量宝石稀有度及价值的制度，至今仍是市场最广泛采用的标准。

GRS introduces heat treatment residue grading, reinstating confidence in the ruby industry for heat treated stones. This practical system linked to rarity and value remains unrivaled in market acceptance.

2000 - None, Insignificant, Minor, Minor to Moderate, Moderate, Prominent

2000 – 无、不明显、轻度、轻至中度、中度、明显

GRS创立祖母绿填充物数量及位置的评级制。这个考量宝石稀有度和价值的制度，至今仍是市场最广泛采用的标准。

GRS introduces emerald filler quantity and placement grading. With evenly spread grades, the rarity and value of emerald grades has remained unrivaled in market acceptance.

2002 - Beryllium treatment H vs. H(Be)

2002 – 铍处理H vs. H(Be)

GRS于旗下所有实验所推行铍处理侦测及分类制度，强制性为所有热处理蓝、黄、橙色蓝宝石及所有热处理暹罗（泰国）红宝石进行激光诱发解离光谱法鉴定。至今GRS为全球唯一一家自发为顾客免费提供此项深度分析的商业实验所。

The large-scale implementation of beryllium treatment detection and classification through a company wide introduction of mandatory LIBS-testing (Laser-Induced Breakdown Spectroscopy) for all heated blue, yellow and orange sapphires as well as all heated Siam rubies, GRS to date remains the sole commercial lab to provide such in-depth analysis without the customer needing to explicitly elect and pay extra for such testing.

2015 - Grading of both, enhanced as well as non-enhanced clarity features

2015 – 同时评价优化及非优化净度特徵

GRS严正提醒业界留意祖母绿的天然裂缝，藉此重建业界对天然绿宝石的信心，并纠正“鉴定后处理”的歪风。

GRS mandatorily warns the trade about non-filled cracks in emeralds. This aims to provide confidence towards untreated stones and the prevention of post-testing tampering.

2019 - Invention: Color Stability Test

2019 – 开创自动颜色稳定性测试

顾客可选择测试其宝石的天然褪色程度。在众多宝石之中，黄色及帕帕拉夏型（橙／粉色）蓝宝石的天然颜色稳定性最低。为此，GRS研发出一套全自动化、计算机操控的测试系统。

Clients can elect to have their gemstones tested for natural color fading. Most stones prone to natural color instability are the yellow and Padparadscha type (orange/ pink) sapphires. Our in-house developed system is fully automated and computer controlled.

2015 - Disclosure of HPHT (PHT) treatment

2015 – 高温高压（高温加压）处理披露

GRS清晰划分传统热处理蓝宝石（H）及加压及加热处理蓝宝石（PHT）。

GRS makes a clear separation between conventionally heated sapphires (H) and sapphires heated under elevated pressure (PHT).

2018 - Omitting of color-grading

2018 – 不提供评色级别

GRS宣布，若宝石有一定程度或过多的优化处理，或若宝石因镶嵌手法（如封背镶法）而未能准确评测其颜色，实验所有权不提供GRS型颜色评语（如“鸽血红”）。

GRS reserves the right to omit a GRS-type color-grading (e.g. "pigeon blood") for gemstones with relevant or excessive treatment or if the gemstones' color can not be accurately enough graded due to the mounting condition (e.g certain closed-back settings). Under these circumstances just the color is mentioned without any special "GRS-type" colors.

获得关注的专利 / Notable patent:

约阿希姆·曼哈特，阿道夫·珀勒第（1996）：以光谱仪识别和/或分类宝石之程序和设备。德国专利局编号DE 19610393 A1

Joachim Mannhardt, Adolf Peretti (1996): Procedure and appliance for the purpose of identification and/or classification of gemstones with a spectrometer. Patent Application German Patent Office, DE 19610393 A1

GRS 型

“鸽血红”

红宝石

GRS-type

“PIGEON BLOOD”

Ruby

历史

“鸽血红”一词的历史源远流长，传统上用来描绘极品缅甸红宝石的颜色。GRS于1996年率先以GRS型“鸽血红”来称呼达指定颜色评级的红宝石，至今“鸽血红”已成为宝石业界、拍卖行及最终消费者的评色标准。

Heritage

This color term has far reaching pedigrees, and was traditionally used to describe the finest colors found in Burmese (Myanmar) ruby. GRS first introduced the color term GRS-type “pigeon blood” onto the market in 1996, creating a market standard for the trade, auction houses and for end-users.

定义

GRS型“鸽血红”1 型：形容红宝石呈中强至强饱和度的鲜艳红色色相（亮度高、低色调），并在365nm 紫外光线下呈中至强度的萤光。
“鸽血红”2 型：2012年GRS 新增级别，以描述达“鲜艳”级红色、但萤光未达中强度的非缅甸红宝石。此级别的红宝石，报告中会附以附录及以下评语：“此莫桑比克红宝石的鲜艳红色，颜色饱和度媲美GRS型“鸽血红”红宝石（无强萤光）。”

获嘉许为GRS型“鸽血红”的红宝石，产地遍及全球，而主要产地为缅甸、莫桑比克及马达加斯加。

刊物

首份引用GRS术语 “鸽血红” 的拍卖行刊物，是伦敦苏富比 1998 年 6 月“Important Jewels”拍卖图录（拍品140，GRS编号GRL9804015）。时至今天，GRS型“鸽血红”一词已成为业界标准，并广为其他实验室所采用。
拍卖参考：
- 2013年，香港一国际拍卖行的一枚 20.03 克拉莫桑比克红宝石指环，附 GRS型“鸽血红”报告。
- 2015年，佳士得以 1.3 千万美元拍出一条 48 颗无烧抹谷及孟秀缅甸红宝石项链，附GRS型“鸽血红”报告。

Definition

GRS-type "pigeon blood" Type 1 describes rubies displaying colors ranging from medium-strong to strongly saturated vivid red hues (high intensity and low tone); and exhibiting medium to strong fluorescence when exposed to UV light (365nm).

In 2012 GRS introduced the "pigeon blood" Type 2 color term for rubies displaying the correct vivid red color, but producing less than medium-strong fluorescence. Qualifying rubies receive an appendix to the GRS gemstone report which includes the following comment:

“This vivid red Mozambican ruby is reminiscent in color saturation of a GRS-type “pigeon blood” ruby (without strong fluorescence).”

Rubies qualifying for the GRS-type "pigeon blood" designation may be found in various global sites like Burma (Myanmar), Mozambique or Madagascar etc.

Publications

The first auction house publication citing the use of the GRS term "pigeon blood" was Sotheby's Important Jewels London, June 1998 (Lot 140, GRS number GRL9804015). Today the term GRS-type "pigeon blood" has become an industry-wide standard that has been adapted by other laboratories as well.

Auction References:
- A ring featuring a 20.03 ct Mozambican ruby at an international auction house in Hong Kong, 2013 accompanied by a GRS-type “pigeon blood” report.
- A necklace featuring 48 unheated Burmese pigeon blood rubies from Mogok and Mong Hsu at Christies sold for $13M USD in 2015 accompanied by a GRS-type "pigeon blood" report.

左页：
GRS型“鸽血红”2型红宝石指环，产自马达加斯加，4.04 克拉，GRS2009-031560。

上图：
21 颗无烧 GRS型“鸽血红”1 型红宝石（共重 42.24 克拉），产自莫桑比克，GRS2016-028033。GRS收藏品。

Opposite:
Type 2 GRS-type “pigeon blood” ruby ring from Madagascar, 4.04 ct. GRS2009-031560.

Top:
Necklace featuring 21 unheated Type 1 GRS-type "pigeon blood" rubies (42.24 ct total weight) from Mozambique. GRS2016-028033. GRS Collection.

研究

获评为 GRS型“鸽血红”的红宝石，必须符合三个化学结构要求：一、含铬 (Cr) 度高，約0.3 至 0.5 wt-%或更高；二、含铁 (Fe) 度中至低或无；三、铬／铁比例大于1（已计算单一正面颜色及萤光纠正）。

GRS型“鸽血红” 1 型：适用于所有大理岩型红宝石。因含高铬、低铁，红宝石在 365nm紫外光线下呈中强至强度萤光。部分含铁量较高、但呈中强至强度萤光的非大理岩型红宝石，亦有可能被评为GRS型“鸽血红” 1型。

GRS型“鸽血红” 2型：适用于符合上述描述，但红宝石在正面观察时于 365nm 紫外光线下呈中度或更弱的萤光的其他红宝石。

欲知详情，请浏览
www.pigeonsblood.com/home-sc

Research

Ruby qualifying for GRS-type “pigeon blood” must contain relatively high chromium (Cr) content of approx. 0.3 to 0.5 wt-% (or higher) and none or very low to medium iron (Fe); while the ratio of Cr/Fe is greater than 1 (individual face-up color and fluorescence-corrections are also applied).

Type 1 - GRS-type "pigeon blood" applies to all marble deposit ruby. They generally exhibit a medium-strong to strong fluorescence when exposed to UV light (365nm) due to their high chromium (Cr) concentration and low iron content (Fe). Some non-marble deposit ruby with subsequently higher iron concentrations may qualify as Type 1 - GRS-type “pigeon blood”, providing they exhibit a medium-strong to strong fluorescence.

Type 2 - GRS-type “pigeon blood” applies to all other rubies that properly face-up in appearance but display a medium or less fluorescence when exposed to UV light (365nm).

Visit www.pigeonblood.com
for more information.

GRS型“鸽血红” 1型
Type 1: GRS-type "pigeon blood" Ruby

GRS型“鸽血红” 2型
Type 2: GRS-type "pigeon blood" Ruby

以下的红宝石，不会获嘉许为 GRS型“鸽血红”：

- 品质低劣，如明显色带、开窗或明显内含物
- 经铍扩散处理／H(Be)；
- 经铅玻璃充填处理；
- 热处理残留物多于“少量”程度／H(c)或H(d)
- 合成红宝石

The GRS-type “pigeon blood” label is not granted for:

- Rubies with dominant quality issues such as apparent color zoning, windowing or disturbing inclusions
- Beryllium-treated rubies / H(Be)
- Lead-glass-filled rubies
- Rubies with more than minor residues from heating H(c) and H(d)
- Synthetic rubies

GRS型“鸽血红”红宝石的产地包括：

- 阿富汗
- 缅甸
- 马达加斯加
- 莫桑比克
- 塔吉克斯坦
- 坦桑尼亚
- 越南及其他国家

Sources from which GRS-type “pigeon blood” rubies may originate from:

- Afghanistan
- Burma (Myanmar)
- Madagascar
- Mozambique
- Tajikistan
- Tanzania
- Vietnam and others

扫描此QR码，观看创世界纪录的“鸽血红”红宝石视频

Scan for a video of world-record "pigeon blood" ruby

缅甸抹谷红宝石的孪生纹 Twinning seen in rubies from Mogok, Burma (Myanmar)

本页及邻页：
一颗非缅甸产、强荧光（邻页）的红宝石。
这颗无烧红宝石产于塔吉克斯坦，重 8.35 克拉。
GRS收藏品。GRS2013-078486。

Top and opposite page:
Example of a non-Burmese ruby exhibiting strong fluorescence (opposite).
This particular stone is a 8.35 ct unheated ruby from Tajikistan.
GRS Collection. GRS2013-078486.

GRS 型
“皇室蓝”
蓝宝石

GRS-type
“ROYAL BLUE”
Sapphire

历史

“皇室蓝”一词在某些著名蓝宝石产地沿用已久，传统上用以形容优质的斯里兰卡及缅甸蓝宝石的颜色；近年亦用于马达加斯加蓝宝石。GRS 于1996 年率先以GRS型“皇室蓝”来称呼达指定颜色评级的蓝宝石，至今“皇室蓝”已成为宝石业界、拍卖行及最终消费者的评色标准。

Heritage

Rich with regional history, this color description is traditionally applied to the finest colors of Sri Lankan and Burmese (Myanmar) sapphires but recently also for sapphires from Madagascar. GRS first introduced the color term GRS-type “royal blue” in 1996 to the gemstone market, establishing a standard for the trade, auction houses and end-users.

定义

GRS型“皇室蓝”：形容颜色艳丽、饱和度达中强至强的变质岩型蓝宝石。
获嘉许为 GRS型“皇室蓝”的蓝宝石，产地遍及全球，而主要产地为斯里兰卡、马达加斯加及缅甸。

刊物

首份引用GRS术语“皇室蓝”的拍卖行刊物，是圣莫里茨苏富比1998 年 2 月“Magnificent Jewels”拍卖图录中的一只 Van Cleef & Arpels 梵克雅宝指环（拍品636，GRS编号 GRL9712003）。时至今天，GRS型“皇室蓝”一词已成业界评色标准，并广为其他实验室所采用。

Definition

Royal blue describes sapphire with a range of medium-strong to strongly saturated vivid blue color that originate in metamorphic formation.

Sapphire qualifying for the “royal blue” designation can be found in various locations around the world such as Sri Lanka, Madagascar and Burma (Myanmar).

Publications

The first auction house publication using the GRS term “royal blue” was Sotheby’s Magnificent Jewels St. Moritz, February 1998, for a Van Cleef & Arpels ring (Lot 636, GRS report No. GRL9712003). Today GRS-type “royal blue” designation has become the industry standard and has subsequently been adapted by other laboratories.

上图：
GRS型“皇室蓝”蓝宝石，
产自斯里兰卡，12.04克拉，
GRS2012-021443。

Top:
GRS-type “royal blue”
sapphire from Sri Lanka, 12.04 ct.
GRS2012-021443.

研究

研究 获评为GRS型“皇室蓝”的蓝宝石，必须产自变质岩及伟晶岩矿床。

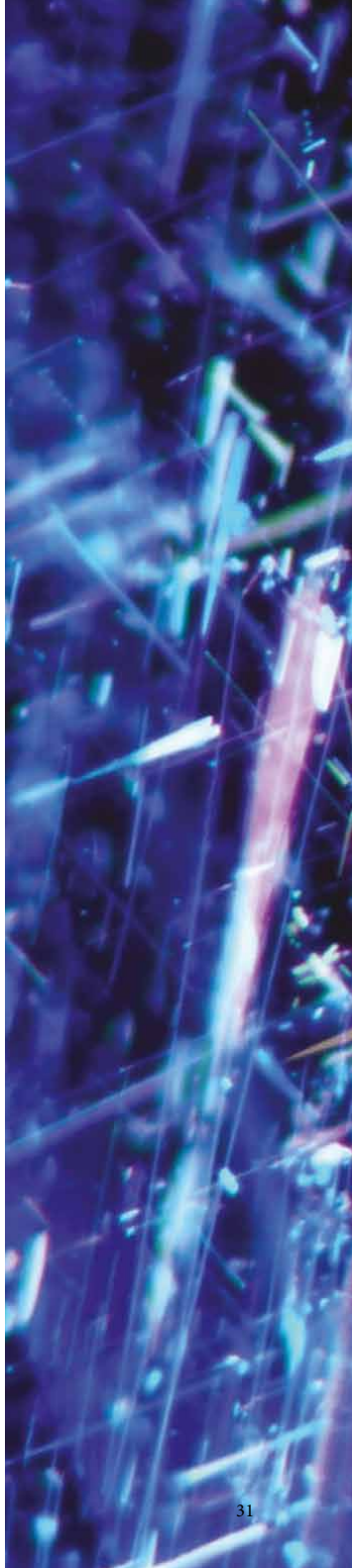
以下的蓝宝石，不会获嘉许为GRS型“皇室蓝”：

- 品质低劣，如明显色带、开窗或明显内含物
- 玄武岩型蓝宝石（含高浓度三价铁离子， 常带灰或黑色消光现象），如产自泰国、澳洲或西非的蓝宝石
- 经高压高温（PHT）处理，经扩散处理 或经铍扩散处理／H(Be)
- 合成蓝宝石

Research

GRS-type “royal blue” sapphires derive from metamorphic and pegmatitic geological origins.
The GRS-type “royal blue” label is not granted for:

- Sapphires with major quality issues such as apparent color zoning, window or disturbing inclusions
- Basalt related sapphires (high Fe^{3+} concentrations) that often have grey or black extinctions such as sapphires from Thailand, Australia or West Africa
- Sapphires that have been high temperature and high pressure treated “PHT”, diffusion treated or beryllium diffusion treated sapphires “H(Be)”
- Synthetic sapphires



斯里兰卡蓝宝石的针状金红石内含物 **Rutile needles seen in a sapphire from Sri Lanka**

扫描此QR码，观看创世界纪录的“皇室蓝”蓝宝石的视频

Scan for a video of a world- record "royal blue" sapphires

GRS 型
“矢车菊蓝”
蓝宝石

GRS-type
“CORNFLOWER”
Sapphire

历史

“矢车菊”一词历史悠久，过往用以描述印度克什米尔顶级蓝宝石的颜色。GRS 于 1996 年以 GRS 型“矢车菊蓝”确立为指定色级的专门名词并引入市场，至今“矢车菊蓝”已成为宝石业界、拍卖行及最终消费者的评色标准。

Heritage

This color term reflects important historical roots, traditionally describing the finest color range found in sapphire from Kashmir (India). GRS introduced the color term GRS-type “cornflower” to the gemstone market in 1996, setting a market standard for the trade, auction houses and end-users.

定义

GRS型“矢车菊蓝”：形容颜色呈饱和度中至中强、拥有标志性丝绒似纤细蓝色外观的蓝宝石；拥有强蓝色饱和度和明显丝绒者，则会获嘉许为“浓艳矢车菊蓝”。在聚光灯灯光直射下，矢车菊的颜色常显得更为艳丽。

获嘉许为 GRS型“矢车菊蓝”的蓝宝石，产地遍及全球，而主要产地为马达加斯加、斯里兰卡及印度克什米尔。

刊物

首份引用 GRS型“矢车菊蓝”概念的文献为：
Peretti, A.P. (1997) Corundum Where and Why Momentum 1997 3 1 24

Definition

Cornflower describes sapphire with a color range of medium to medium-strong blue saturation and which displays its iconic silky soft, velvet-like appearance. Sapphire with a strong blue saturation and dominant silky appearance is graded “Intense cornflower”. When illuminated in direct spotlight, the color-appearance is greatly enhanced.

Sapphire qualifying for the “cornflower” descriptor may be found in various locations around the world like Madagascar, Sri Lanka and India (Kashmir).

Publications

First publication of the “cornflower” blue concept:
Peretti, A.P., 1997. Corundum Where and Why. Momentum, 1 March 1997. 24.

蓝色
GRS型“矢车菊蓝”
蓝宝石

Blue GRS-type “cornflower” Sapphire

蓝色
GRS型“浓艳矢车菊蓝”
蓝宝石

Blue GRS-type “intense cornflower” Sapphire

上图：
GRS型“浓艳矢车菊蓝”蓝宝石指环，重12.19克拉，产自斯里兰卡。GRS收藏品。GRS2013-083270。

Top:
Blue GRS-type “intense cornflower” sapphire ring, 12.19 ct from Sri Lanka. GRS Collection. GRS2013-083270.

研究

GRS型“矢车菊蓝”蓝宝石的外观之所以呈丝绒状，全因晶体内所含有的平均分布纤细针状内含物及微小粒子令光源均匀地分散及反射出来。所有蓝宝石的致色元素都是铁（Fe）和钛（Ti）。克什米尔及马达加斯加出产的蓝宝石，常带有独特的蓝白相间色纹及透明色带，令宝石色泽看上去更为均匀细腻，也因此更引人入胜。

以下的蓝宝石，不会获嘉许为GRS型“矢车菊蓝”：

- 品质低劣，如明显色带、开窗或明显内含物
- 玄武岩型蓝宝石（含高浓度三价铁离子，常带灰或黑色消光现象），如产自泰国、澳洲或西非的蓝宝石
- 经高压高温（PHT）处理，经扩散处理或经铍扩散处理／H(Be)
- 合成蓝宝石

Research

The soft silky appearance of “cornflower” sapphire is the result of evenly distributed, fine needles and small particles in the crystal that scatter and reflect light evenly. All blue sapphire is colored by iron (Fe) and titanium (Ti). The alternating color bands of blue and white with colorless zones, typically observed in Kashmir and Madagascar sapphires add to their allure by furthering the even distribution of color.

The GRS-type “cornflower” label is not granted for:

- Sapphires with major quality issues such as apparent color zoning, window or disturbing inclusions
- Basalt related sapphires (high Fe^{3+} concentrations) that often have grey or black extinctions such as sapphires from Thailand, Australia or West Africa
- Sapphires that have been high temperature and high pressure treated “PHT”, diffusion treated or beryllium diffusion treated sapphires “H(Be)”
- Synthetic sapphires

扫描此QR码，观看GRS型
“矢车菊蓝”蓝宝石的视频

Scan for a video of GRS-type "cornflower" blue sapphire

一颗无烧蓝宝石的内含物，产自马达加斯加2017年新发现的阿姆巴唐德拉萨卡（Ambatondrazaka）矿场

Inclusion seen in unheated sapphire from the new sapphire mine (2017) near Ambatondrazaka in Madagascar.

“老坑／穆索绿附录”
祖母绿

“OLD MINE / MUZO GREEN APPENDIX”
Emerald

历史

过往业界一直以“老坑／穆索绿”来形容哥伦比亚祖母绿最上乘的绿色。GRS于 2015年把 GRS型“老坑／穆索绿附录”确立为指定评色名词并引入市场，至今这名词已成为宝石业界、拍卖行及消费者的评色标准。

“穆索是哥伦比亚最著名的祖母绿矿区，千多年来出产过无数举世知名的极品祖母绿。该等稀有、出众、颜色浓艳的绿宝石，成为了所有绿宝石的评审指标。”

来源：Sauer, J.R., 1982. Emeralds Around The World 第1版。里约热内卢：J.R. Sauer.。

Heritage

This color term describes the finest color range found in emeralds of Colombian origin. GRS introduced the special “Old Mine / Muzo Green Appendix” onto the gemstone market in 2015, creating a market standard for the trade, auction houses and consumers.

“Muzo is the most famous of Colombia’s emerald mines. It has produced stones of matchless beauty for more than a thousand years. The rare, fine, saturated green crystals sometimes found there are the yardstick by which all other emeralds are judged.”

Source: Sauer, J.R., 1982. Emeralds Around The World. 1st ed. Rio de Janeiro: J.R. Sauer.

定义

GRS型“老坑／穆索绿附录”称号，是嘉许予颜色饱和度强达“鲜艳绿色”级别、产自哥伦比亚的祖母绿。符合评级标准的祖母绿，其GRS 宝石报告中将另设附录及以下评语：

“此明艳饱和、重 8.35 克拉的祖母绿，颜色媲美世界知名穆索矿区出产的极品祖母绿的绿色。该等祖母绿色泽的正统名称为“穆索绿”(*)，亦即业界常用的“老坑”祖母绿。”

*此附录仅陈述哥伦比亚出产的祖母绿的特定品质及颜色并无指明宝石产自哪一个矿区。

获得 GRS型“老坑／穆索绿附录”称号的祖母绿，产地必定为哥伦比亚的矿区，例如穆索 (Muzo)、科斯库斯 (Coscuez)、奇沃尔 (Chivor) 或昆纳斯 (Cunas) 。

以下的绿宝石，不会获嘉许为 GRS型“老坑／穆索绿附录”：

- 带有明显色带，开窗或明显内含物
- 品质低劣，或经轻至中度及任何中度的加工处理
- 经填充处理表面裂缝或洞孔
- 经辐照、镀膜或其他颜色处理令颜色改变
- 有大量及明显的裂缝或内含物影响净度

欲知详情，请浏览 www.muzo-green.com

刊物

GRS型“穆索绿”一词首次于 2015 年获国际拍卖行刊物引用（拍品190，GRS编号GRS2014-103592）。

Definition

Our “Old Mine / Muzo Green Appendix” describes emerald originating from Colombia with a strongly saturated vivid green color range. Qualifying emeralds receive an appendix to the GRS gemstone report with comments as follows:

“This vividly saturated emerald of 8.35 ct is reminiscent in hue of the varieties displaying the legendary colors found in the world renowned Muzo mines. They are formally described as “Muzo Green” (*) and commonly known in the trade as “Old Mine” emeralds.”

**This appendix indicates the specific quality and color for emeralds from various Colombian mines; however, it does not specify from which particular mine they were found.*

Emeralds qualifying for the “Old Mine / Muzo Green Appendix” title can be found from a variety of Colombian emerald mines such as Muzo, Coscuez, Chivor or Cunas.

The “Old Mine / Muzo Green Appendix” title is not granted for emeralds with:

- Dominant quality issues such as apparent color zoning, windowing or disturbing inclusions
- Low quality minor to moderate and all moderate treatment grades
- Surface cavity fillings
- Irradiation, coating or other color-modifying treatments
- Obvious and disturbing non-enhanced clarity features

Visit www.muzo-green.com to learn more.

Publications

The first international auction house publication to use the GRS term “Muzo green” was in 2015, (Lot Nr. 190, GRS Number GRS2014-103592).

上图：
获“老坑／穆索绿附录”称号的哥伦比亚祖母绿指环，重 5.70 克拉，无净度优化痕迹。GRS收藏品。GRS2016-028509。

Top:
Colombian emerald ring 5.70 ct, no indication of clarity enhancement with “Old Mine / Muzo Green Appendix”. GRS Collection. GRS2016-028509.

研究

祖母绿的致色元素为铬(Cr)及钒(V)。获得“老坑／穆索绿附录”的祖母绿，所含铬及钒的化学成分比例一般较其他矿区的祖母绿为高。

哥伦比亚祖母绿常带独特而典型的三相内含物——细小的晶体（固相）及带小气泡（气相）的液体（液相）。

GRS 报告对“Efecto Aleta de Mariposa”（蝶翅效应）的描述为：

此外，此祖母绿外观所呈现的丝绒状，是由于文献中所提及的罕见生成现象（蝶翅效应）所造成。拥有（蝶翅效应）的祖母绿，GRS称之为GRS型“Mariposa”，即西班牙语的“蝴蝶”。

Research

The main cause for color in emerald is chromium (Cr) and vanadium (V). “Old Mine / Muzo Green Appendix” emeralds are rich in their chemical concentrations and thus have a comparatively high content of Cr and V when compared to emeralds from most other localities.

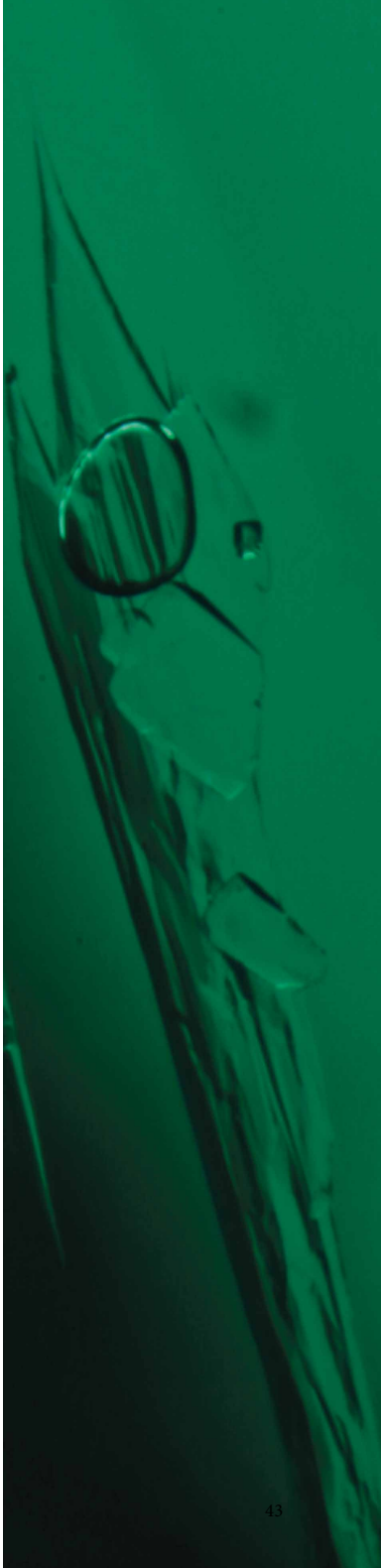
Colombian emeralds mostly contain distinct and typical three phase inclusions consisting of tiny crystals and a gas bubble in liquid.

GRS reports describing the “Efecto Aleta de Mariposa” appear as:

Additionally, this particular emerald displays a velvety appearance caused by a rare growth phenomenon described in the literature as “butterfly wing effect”. Theses stones are given the designation GRS-type “Mariposa”, referring to the Spanish word for butterfly.

呈“蝶翅现象”的哥伦比亚祖母绿的内含物。“蝶翅现象”是祖母绿形成时产生的独特纹理。

Inclusion photo of a Colombian emerald displaying the “Efecto Aleta de Mariposa” or “Butterfly Wing Effect”, a growth phenomenon producing a special pattern.



一颗哥伦比亚祖母绿的三相内含物 A 3-phase inclusion found in a Colombian emerald

扫描此QR码，观看从直升机上拍摄的
哥伦比亚祖母绿矿场的视频

Scan for a video of a helicopter tour to the Colombian emerald mines

上图：
GRS型“晨曦”，无烧帕帕拉夏蓝宝石，逾7克拉，产自斯里兰卡。

下图：
GRS型“夕阳”，无烧帕帕拉夏蓝宝石，逾70克拉，产自斯里兰卡。

Top:
GRS-type “Sunrise”, unheated padparadscha sapphire, +7 ct from Sri Lanka.

Bottom:
GRS-type “Sunset”, unheated padparadscha sapphire, +70 ct from Sri Lanka.

GRS 型

“晨曦”及“夕阳”

帕帕拉夏蓝宝石

GRS-type

“SUNRISE” & “SUNSET”

Padparadscha Sapphire

历史

帕帕拉夏是一种源自斯里兰卡的彩色蓝宝石，传统上是指颜色界乎橙色与粉红色之间的蓝宝石。“帕帕拉夏”一词出自梵语“padma”，意指斯里兰卡莲花的粉红色，同时也指“晨曦”和“夕阳”时分天空呈现的粉橙色和粉红色。2017年，GRS进一步将帕帕拉夏细分为GRS型“晨曦”及GRS型“夕阳”。

Heritage

This fancy color sapphire variety has far reaching roots in Sri Lanka, traditionally describing sapphires with a distinctive color balance of orange and pink. The term “padparadscha” originates from the Sanskrit language as a word play on the color of Sri Lankan lotus blossoms (padma); but also, the orange and pink color mix observed during a sunrise and sunset. In 2017 GRS further separated these padparadschas into more specific GRS-type “Sunrise” and GRS-type “Sunset”.

定义

“帕帕拉夏”：不论产地，凡拥有适当的色彩平衡（色平）及适当颜色饱和度，同时未经热处理优化或仅经常规加热处理的彩色蓝宝石，均会获嘉许为“帕帕拉夏”一词。

GRS型“晨曦”：饱和度中至强、粉红色为主而带橙色的帕帕拉夏，例：橙粉红色（GRS型“晨曦”）。

GRS型“夕阳”：饱和度中至强、橙色为主而带粉红色的帕帕拉夏，例：粉红橙色（GRS型“夕阳”）。

饱和度偏低的粉彩颜色，只要含有橙色和粉红色元素以及饱和度不过低，仍有可能获评鉴为“帕帕拉夏”。

以下的彩色蓝宝石，不会获嘉许为“帕帕拉夏”：

- 品质低劣，有明显色带、开窗或明显内含物
- 有扩散处理及铍扩散处理迹象／H(Be)
- 带有比淡褐或淡黄色调更深的褐／黄干扰色 (color modifier)
- 合成蓝宝石

Definition

GRS awards the usage of the term padparadscha to fancy sapphire of all origins providing they possess the right color balance, the right intensity of saturation and are either spared from thermal enhancement or conventionally heated only.

GRS-type “Sunrise” describes padparadschas with a medium weak to strong saturation of predominantly pink with orange color; for example: orangy-pink (GRS-type “Sunrise”).

GRS-type “Sunset” describes padparadschas with a medium weak to strong saturation of predominantly orange with pink color; for example: pinkish-orange (GRS-type “Sunset”).

Pastel colors with weak saturation may still be awarded the padparadscha identification term providing both orange and pink color components are still present and the saturation is not overly weak.

The descriptive term “padparadscha” is not granted to the following sapphires:

- Sapphires with dominant quality issues such as apparent color zoning, windowing or disturbing inclusions
- Evidence of diffusion treatment or beryllium diffusion treatment / H(Be)
- More than faint brown or yellow color modifiers
- Synthetic sapphire

邻页：
无烧 GRS型“夕阳”帕帕拉夏蓝宝石，
重18.00 克拉，产自马达加斯加戴迪（Didy）。
GRS 收藏品。GRS2013-023719。

Opposite:
GRS-type “Sunset”, unheated padparadscha sapphire, 18.00 ct from Madagascar (Didy). GRS Collection. GRS2013-023719

刊物

〈Record-breaking Rubies Discovered in Didy, Madagascar〉。《Contributions to Gemology》，2013年 5月／第13期 —— 谈及一颗刷新世界纪录、重 18.00 克拉的 GRS型“夕阳”帕帕拉夏。

香港佳士得2011年 11月“瑰丽珠宝及翡翠首饰”，拍品2720 、附GRS于2010年3月 4日发出的证书（报告编号 GRS2010-031096，嘉许编号536），说明一颗14.65克拉天然帕帕拉夏（“帕德玛刚玉”）产自斯里兰卡，颜色为橙粉红色，无热处理迹象。

纽约苏富比 2016 年，拍品 407 附GRS于 2011年7月25 日发出的证书（报告编号GRS2011-074319），说明一颗 6.18 克拉帕帕拉夏蓝宝石产自斯里兰卡，无热处理迹象。

Publications

Contributions to Gemology, No. 13, May 2013, Record-Breaking Rubies Discovered in Didy, Madagascar - featuring a world record 18.00ct GRS-type "Sunset" padparadscha .

Christies - Hong Kong Magnificent Jewels 2011 - Lot 2720. Also accompanied by report no. GRS2010-031096 (Award No 536) dated 4 March 2010 from Gem Research Swiss Lab stating that the 14.65 carat natural padparadscha is of Sri Lanka origin, orangy-pink colour, with no indication of thermal treatment.

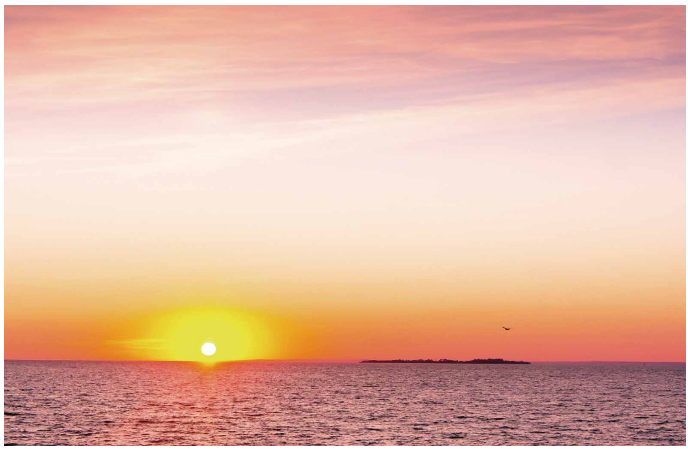
Sotheby’s - New York 2016 - Lot 407; Accompanied by GRS report no. GRS2011-074319 dated July 25, 2011 stating that the 6.18 carat padparadscha sapphire is of Sri Lankan origin, with no indications of heating.

研究

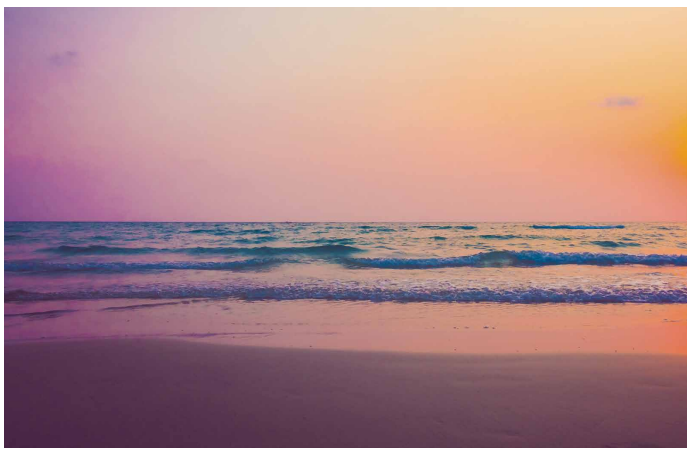
刚玉中的铬生色团加上色心，令宝石呈现粉红色糅合橙色的颜色。

Research

Chromium chromophores in the corundum in combination with color-centers produce a combination of pink and orange colors.



粉红橙色的夕阳（日落）
Pinkish-Orange Sunset



橙粉红色的晨曦（日出）
Orangy-Pink Sunrise

扫描此 QR 码，观看斯里兰卡的传统河床采矿视频

Scan for a video of traditional rivermining in Sri Lanka

一颗帕帕拉夏蓝宝石带罕见的粉红色与橙色相间色区，2017年采自马达加斯加（阿姆巴唐德拉萨卡）

Unusual color zoning (alternating pink and orange) found in a padparadscha sapphire from Madagascar (Ambatondrazaka), 2017.

GRS 型
“蜜糖色”
金绿宝石

GRS-type
“HONEY-COLOR”
Chrysoberyl

历史

金绿宝石的英文名称“chrysoberyl”源自希腊语的“chrysos”及“beryllos”，意指“一颗金白色晶石”。金绿宝石最广为人知的特色，是拥有“猫眼”效应。

GRS于2003年首创GRS型“蜜糖色”一词，以形容及规范业界常用来描述极品猫眼金绿宝石所呈现的“牛奶蜜糖效果”。

Heritage

Chrysoberyl originates from the Greek words chrysos and beryllos, meaning “a gold-white spar”. It is the most well-known of the gemstones displaying a cat’s eye effect.

GRS first introduced the color descriptor GRS-type “honey-color” in 2003 to define the finest range of color for cat’s eye chrysoberyl in reference to the more common term “milk and honey effect”.

定义

GRS型“蜜糖色”：形容金绿宝石呈中度饱和的绿黄色，透明至轻度半透明，并具备清晰的猫眼效应。

刊物

GRS 于 2003 年年初开始采用“蜜糖色”一词，自此获多家知名拍卖行引用，现在此评色名词已成为描述顶级猫眼金绿宝石的评色标准。

例子：
香港 Bonhams “Fine Jewellery & Jadeite”，2007 年 11 月，拍品 123 一颗 35.62 克拉、以 4.9 万美元拍出的绿黄色GRS型“蜜糖色”，报告说明该猫眼金绿宝石无热处理迹象，报告编号 GRS2007-080409。

香港苏富比“瑰丽珠宝及翡翠首饰”，2015年4月，拍品1608 报告说明该颗重 24.15 克拉的猫眼金绿宝石为天然、绿黄色（GRS型“蜜糖色”），无热处

理迹象，报告编号 GRS2014-105858。

Definition

GRS-type “honey-color” describes chrysoberyl with a medium saturated greenish-yellow; transparent to slightly translucent in appearance displaying a distinct cat’s eye effect.

Publications

The color term honey color was introduced by GRS in the early 2003. It has since been referenced to by the leading auction houses and has become an industry standard for describing the finest cat’s eye chrysoberyl.

Bonham’s Fine Jewellery & Jadeite, HongKong, November 2007, Lot 123. A 35.62ct sold for over $49,000 USD greenish-yellow colour, GRS-type “honey colour”. The report also states that the cat’s eye chrysoberyl has no indication of thermal treatment. Repor t number GRS2007-080409.

Sotheby’s Magnificent Jewels & Jadeite, April 2015, Hong Kong, Lot 106. Stating that the 24.15 carat cat’s-eye chrysoberyl is natural, greenish-yellow (GRS-type “honey-color”), with no indication of treatments. Report number GRS2014-105858.

上图：
GRS型“蜜糖色”猫眼金绿宝石指环，重4.08克拉，GRS2016-038350。

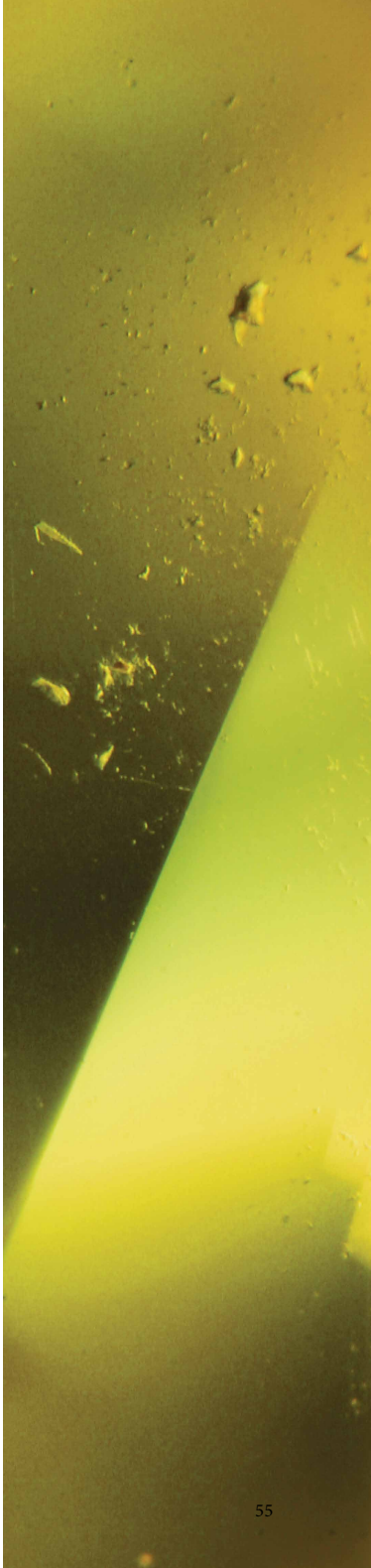
Top:
GRS-type “honey-color” cat’s eye chrysoberyl ring, 4.08 ct. GRS2016-038350.

研究

猫眼效应的形成，源自金绿宝石晶体内的细管、金红石针状或小微粒等内含物；只要切割得当，对齐C轴琢磨成半圆弧面形，便会折射出单线猫眼光芒，亦即猫眼效应。

Research

The cat's eye effect is formed through fine tubes, rutile needles or small micro-particles within the crystal, that when properly cut, aligned on the c-axis in a semi-spherical form (cabochon) may produce a single cat's eye ray, also referred to as chatoyancy.



扫描此 QR 码，观看关于猫眼效应的视频

Scan for a video of a cat's eye effect

GRS 型
“帕拉伊巴色”
碧玺

GRS-type
“PARAIBA-COLOR”
Tourmaline

历史

GRS型“帕拉伊巴色”是一个与地理相关的评色名词，源自1980 年代末于巴西帕拉伊巴州发现的含铜碧玺。由于是全球首次发现含铜碧玺，因此业界一开始便以产地来命名这种宝石。

其后，邻近帕拉伊巴的北里奥格兰德州及非洲大陆的莫桑比克及尼日利亚亦相继发现含铜碧玺。

Heritage

GRS-type “Paraiba-color” is a location-referenced description linking the gemstone to the discovery of copper-bearing tourmaline in the state of Paraíba, Brazil during the late 1980s. The site of its first discovery led to this type of tourmaline being known as Paraiba early on in the trade.

Since the discovery of the original deposit, further findings have yielded copper-bearing tourmaline in the neighboring Brazilian state of Rio Grande do Norte and on the African continent in Mozambique and Nigeria.

定义

GRS型“帕拉伊巴色”：纯属颜色形容词，而非指特定产地来源的碧玺。

所有含铜 (Cu) 碧玺，不论产地，只要含适当的绿及蓝色比例与色调，便有可能符合 GRS型 “帕拉伊巴色” 评级，而最“亮丽”的色调，会获得 GRS型“萤光色” 称号以嘉许其霓虹灯般萤光效果的颜色。

刊物

GRS 于 2009年5月出版全球首份、信息最新也最全面的含铜碧玺文献——《Contributions to Gemology》，第9期。时至今天，GRS型“帕拉伊巴色” 已成为业界及国际拍卖行鉴辨碧玺颜色的评色标准。

拍卖焦点：
香港苏富比 2013年10月“瑰丽珠宝及翡翠首饰”，拍品1783，一枚重 4.52 克拉、经加热处理非洲碧玺的指环以 2.7 万美元拍出（每克拉逾 6 千美元），并引用GRS证书（报告编号GRS2013-078242）说明“碧玺呈「亮丽」绿蓝色 (GRS型萤光色) ”。

Definition

GRS-type “Paraiba-color” refers to a color descriptor only and does not indicate a particular origin of the tourmaline gemstone.

All copper (Cu) bearing tourmaline, irrespective of origin, which possesses the right mix and tone of green and blue may qualify as GRS-type "Paraiba-color". The most “vibrant” of these hues earn the GRS-type “neon-color” title, notably due to their electrifying neon-like display of color.

Publications

GRS published the most comprehensive literature available to this point about copper bearing tourmaline in May 2009, “Contributions to Gemology” No. 9. Today GRS-type “Paraiba-color” has become an industry standard phrase for tourmaline color identification by the trade and leading international auction houses.

Auction Spotlight:
Sotheby’s Magnificent Jewels & Jadeite, Hong Kong, October 2013, Lot 1783, 4.52 ct heated African tourmaline fetched over $27,000 USD (over $6,000/ct) with GRS2013-07824 stating “vibrant” greenish- blue, GRS-type “neon color”.

邻页：
一块产自巴塔利亚矿区（埃托尔矿井）、带不同色泽的巨型“帕拉伊巴”碧玺手采岩样。注：此碧玺仅有少部分呈现蓝“萤光色”；碧玺母岩上有黄水晶及石英。

Opposite:
A spectacular hand specimen with a color-zoned “Paraiba”-tourmaline from the Batalha mine (Heitor shaft). Note: Only very small portion of the tourmaline show the desired blue “neon”-color. Tourmaline on rock matrix with citrine and quartz.

上图：
一枚镶有 GRS 型“帕拉伊巴色”碧玺的指环。

Top:
GRS-type “Paraiba-color" tourmaline featured in a ring.

研究

针对产地及化学成分而言，GRS型“帕拉伊巴色”一词不论产地，适用于所有含铜 (Cu)碧玺。

铜是 GRS型“帕拉伊巴色”碧玺的主要致色元素。巴西的铜锂碧玺的含铜量较高、颜色也较亮丽，但晶体往往比非洲铜锂碧玺小；在化学成分上稍有不同、含钙 (Ca) 的铜钙锂碧玺亦有可能获得GRS型“帕拉伊巴色”称号。

大部分 GRS型“帕拉伊巴色”碧玺均经加热优化处理以消减锰元素 (Mn)造成的紫色，因此未经热处理的样本是收藏家趋之若鹜的珍品。

Research

In terms of origin and chemical composition, GRS-type “Paraiba-color” includes all copper (Cu) bearing tourmaline irrespective of their origin.

Copper is the key element which lends its distinct coloration to this variety of tourmaline. Cuprian-elbaite tourmalines from Brazil contains the higher ratio of copper. Thus, they can generally be found in more vibrant colors, yet in smaller crystal sizes than their African counterparts. Slightly modified chemical compositions that include calcium (Ca) bearing "Cuprian-Elbaite Liddicoatite Tourmaline" may also qualify as GRS-type “Paraiba-color”.

Most GRS-type “Paraiba-color” tourmaline has been subjected to thermal enhancement in order to suppress their purple color component caused by manganese (Mn). Specimens that have not been exposed to heat treatment are highly cherished amongst collectors.

巴西巴塔利亚出产的一颗荧光蓝色帕拉伊巴碧玺的内含物 Inclusion photo of a neon-blue Paraiba tourmaline from the Batalha mine in Brazil

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Scan code to read the full publication

GRS 评色名词/GRS COLOR TERMS

大事年表/Timeline

1987年及以前 /Up to 1987

历史及产地概念

一般而言，拍卖行的主要功能是出售帝王、名人和影星的古董珠宝，同时推广产地概念（缅甸优势）。

Heritage and origin concepts

The major role of an auction house may be understood in selling heritage jewelry from kings, celebrities, film stars as well as the promotion of the origin concepts (Burma premium).

2005年/2005

业界采用GRS概念

GRS的评色名词流入其他主要实验所，全球拍卖图录纷纷引用该等实验所首份起用GRS评色名词的宝石报告。

The trade adopts concept

The concept first enters the global terminology of other major labs. Initial reports from those labs appear in the auction catalogues the world over.

1998年/1998

GRS“鸽血红”及“皇室蓝”报告首次获拍卖行引用

首次有拍卖图录引用GRS“鸽血红”及“皇室蓝”宝石报告，并引用了“鸽血红”一词

苏富比｜1998年6月｜伦敦｜A Very Fine Ruby Ring（非常精美的红宝石指环）｜GRL 9804015

这两个评色名词在GRS把它们引入宝石报告之前，从未出现在拍卖图录之上。

First ever "pigeon blood" and "royal blue" reports at auctions

First "pigeon blood" and "royal blue" gemstone reports appear in auctions catalogues on GRS reports using terminology "pigeon blood" .

Sotheby's | Jun-1998 | London | Lot 140, Very Fine Ruby Ring | GRL 9804015

These terms never appeared in any auction catalogues prior to the introduction by GRS to the world of gemstone reports.

2012至 2015年/2012 - 2015

获评为“鸽血红”及“皇室蓝”的重要拍品售出

多件具备“鸽血红”及“皇室蓝”标签的珍品于国际拍卖行成功拍出。

Important lots sold with "pigeon blood" and "royal blue" label

Significant objects at international auctions are sold with "pigeon blood" and "royal blue" label.

2013年 12月/December 2013

非缅甸（莫桑比克）产“鸽血红”红宝石成功拍出

首颗莫桑比克出产的 GRS型“鸽血红”于香港一家国际拍卖行拍出。该颗重 20.09 克拉的红宝石以1.593千万港元（约2百万美元）拍出。

Pigeon blood colour grading for rubies other than Burmese origin (Mozambique) successfully auctioned

First GRS-type "pigeon blood" ruby with Mozambican origin was sold at a international auction house in Hong Kong. The 20.09 ct ruby was sold for HK$ 15,930,000 (approx. US$ 2M).

2015年 11月/November 2015

GRS提倡‘道德’鉴定方式

GRS重申立场，认为应该以“道德”方式鉴定宝石，不应把颜色和产地混为一谈（例：所有产地的宝石均有机会获得“特别颜色”评级）

GRS raises the "ethical" argument

GRS emphasizes their position regarding the more "ethical" approach of an independent use of origins and colors (e.g. ‘special color’ grades for all origins).

2015年 11月/November 2015

注册商标（Trademark）

GRS把GRS型“鸽血红”及GRS型“皇室蓝”二词注册为商标。

Trademark

GRS trademarks their GRS-type "pigeon blood" (May 2015) and “royal blue” terminology.

2015年 11月/November 2015

其他实验所调整其诠释

Other laboratories harmonize their interpretation.

2017年 11月/November 2017

建立新的子评级

GRS原创评色名词获业界广泛采用，多种变化版本令释义变得含糊。GRS遂建立新的子评级，更精准地描述同一色级内饱和度不同的颜色。

Subdividing GRS-type color terms

With GRS’ color terms gaining international popularity, other organizations eventually introduced variations to their service portfolios. This created uncertainty due to a sudden influx of color term variation. GRS encountered this uncertainty by further subdividing GRS-type color terms to more accurately pinpoint color saturation levels within a color term range.

宝石嘉许

特别评注

若宝石比GRS数据库中的其他宝石更稀有及别具特色，则报告将附以一项简短的“特别评注”。特别评注由 GRS全权决定，并只授予合乎资格的宝石。

白金稀有奖

GRS研究宝石的稀有度时，会比较样本的化验数据与自家数据，从而鉴定宝石是否罕见。GRS数据库内记录了超过20年的内部数据，以及25年来各大国际拍卖的拍品数据。视乎宝石的相对罕见度及价值，及在GRS的全权决定下，宝石或会被列入为“白金奖”分类下的“珍贵”或“稀世”级别。
宝石的稀有度评注，列载于其报告的附录之内。取得白金奖的宝石，其报告编号旁将多出一个独一无二的“嘉许编号”，另有一个奖项全息贴纸，以及一个定制的嘉许报告封面。

新：增强现实白金奖小书

这附设于GRS白金奖报告中的小书，刊载着史上最漂亮、最具价值宝石及珠宝首饰的历史、技术和特徵信息。GRS是全球首家于优质宝石的报告中加入增强现实（AR）元素的实验所。只需下载“GRS AR”苹果或安卓手机应用程式，通过AR技术，即可看到相关图片的录像短片，更生动地了解宝石或珠宝的特色，如其矿区的真实环境等。

GRS Gemstone Awards

Special Comment

Some gemstones are rarer than others and possess exceptional properties when compared with those in our database. Such qualifying gemstones, subject to GRS’s discretion are given a short written "Special Comment" about that specific gem.

Platinum Rarity Awards

GRS researches the rarity of gemstones and compares their rarity to those recorded in our database. These comparisons are made against more than 20 years of data from GRS and 25 years of auction house results. Depending on a gemstones’ relative rarity and value, and subject to GRS’s discretion, we designate a Platinum Award classification as either “Important” or “Magnificent”.

A gemstone’s unique properties are described on an appendix page with its descriptive rarity comment. Award reports are identified by a unique award number appearing next to the GRS Report number, the award hologram sticker and a customized award report cover.

New: Augmented Reality (AR) Platinum Award Book

Dedicated to the most beautiful and valuable gemstones and jewellery masterpieces. This is an award folio with important historical, technical and additional interpretations expanding on the GRS Platinum Award reports. It expands on the unique qualities of the featured gemstone.

GRS is the first laboratory to present augmented reality (AR) with a gemstone premium report. AR is used to convert images into video clips, for example, to demonstrate from which environment a stone was mined. Simply download the "GRS AR" mobile-phone app from the App Store (iOS) or Google Play Store (Android).


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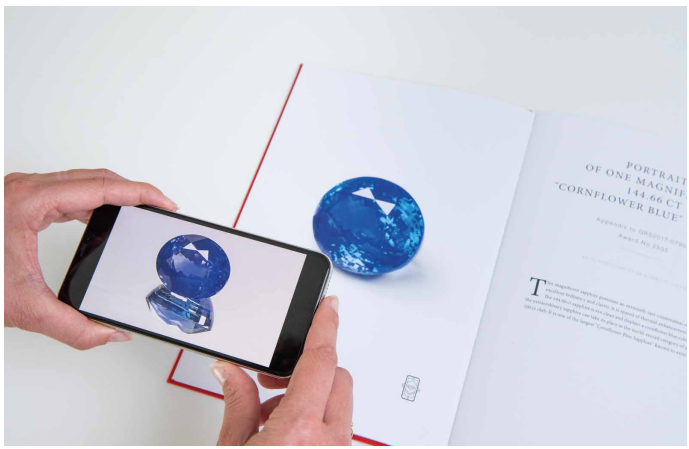
PLATINUM AWARD
EXAMINATION RESULTS



GRS AR应用程式 —
增强现实案例

你可用iOS或安卓手机体验我们的GRS AR应用，步骤有三：

1. 于手机中打开App Store（iOS）或Google Play商店（安卓）应用
2. 搜寻“GRS AR”APP
3. 下载及安装APP
4. 开启APP，扫描以下图片，即可见到指环旋转

扫描二维码，下载GRS AR应用程式
Scan to download
the GRS AR app

GRS AR App -
Augmented Reality [AR] Example

Try out the GRS AR app using your iOS or Android device. Simply follow the step below and experience the power of AR.

1. On your mobile device open the App Store (iOS) or Google Play Store (Android)
2. Search for "GRS AR"
3. Download and install the app
4. Launch the app and scan the picture below and see the ring turning

上：GRS专有性颜色稳定性高科技综合灯箱测试仪

Top: GRS' custom built and fully automated and standardized color stability test device

颜色稳定性测试

某几种蓝宝石如橙至黄色的蓝宝石，会出现自然的褪色现象；此现象可以灯照方式逆转。光线所散发的能量，会有效消减蓝宝石中的黄或橙色元素，造成颜色转变；譬如说，灯照可令一颗橙粉色帕帕拉夏蓝宝石变为粉色。利用特定的光源如长波紫外线光，可令宝石重现其原有颜色。

GRS研发出一个专有性颜色稳定性测试，利用高科技综合灯箱测试仪，为顾客提供业界首个全自动、标准化的颜色稳定性测试。仪器会对宝石充电、放电、再充电，并准确地记录每个数值。我们自发在标准服务中加入这项测试。

未有进行颜色稳定性测试的蓝宝石，其GRS报告将附注以“颜色稳定性测试不适用”。

经颜色稳定性测试后未有发现褪色情况的蓝宝石，其GRS报告将附注以“已进行颜色稳定性测试，无褪色迹象”。

经颜色稳定性测试后发现褪色情况的蓝宝石，其GRS报告将附注以“已进行颜色稳定性测试，有褪色迹象”。

出现褪色迹象的蓝宝石，将不能获取GRS型颜色评级（例如“艳”），并不会在ID一栏标示为“帕帕拉夏蓝宝石”。

Color Stability Testing

Color fading is a natural phenomenon observed in certain gemstones, particularly with orange to yellow sapphires. This reversible phenomena occurs when the sapphire is exposed to a certain type of light. The light sources emission energy will eventually induce a color-change effectively reducing the yellow or orange component of that sapphire. For example an orangy-pink Padparadscha sapphire can change to a pink sapphire color. The original color can be reinstated after irradiation exposure to a particular light source such a as longwave UV-light.

GRS developed a proprietary color stability test in the form of a fully integrated light box testing facility. This is the first fully automated and standardized color stability test which can charge, discharge and then recharge a client’s gemstone whilst accurately documenting each occurrence.

This elective test can be performed in addition to our standard service.

Sapphires where the color-stability test was not applied will bear the following comment on the GRS report: “Color-stability test not applied”.

Sapphires where the color-stability test was applied, without fading observed will be marked: “Color-stability test applied with no indications of fading".

Sapphires where the color-stability test applied with fading will be marked: “Color-stability test applied with indications of fading”.

Sapphires that show fading will not qualify for GRS-type color grades (e.g. “vivid”) and will not have their ID indicated as “Padparadscha Sapphire”.

上图：阿道夫·珀勒第博士于2016年12月现身瑞士电视节目“Mise au Point”（焦点），讲解一颗红宝石从抹谷矿场开采至送往GRS瑞士总部实验室进行鉴定的整个过程。

Top: Adolf Peretti being featured in "Mise au Point", a Swiss TV programme about the fascinating journey of a ruby from the mines of Mogok all the way to our GRS laboratory in Switzerland, December 2016.

关于 GRS 总裁

阿道夫·珀勒第博士为瑞士苏黎世联邦理士学院哲学博士，论文题材为“阿尔卑斯山脉之矿物形成”。在此之前，他的硕士论文《阿尔卑斯山脉之构造地质学及变质作用》亦赢得苏黎世大学奖项，并获英国宝石协会及德国宝石协会颁授杰出嘉许。

1996 年，珀勒第博士创办 GRS，一家蜚声国际的独立宝石学研究实验所。2000 年，他获法国巴黎欧洲地质学家联盟颁发“欧洲地质学家”名衔，以表扬其专业成就。多年来，珀勒第博士醉心于研究工作，亲身考察矿区、到访宝石切割及加工中心，并与多间著名大学及各地研究科学家合作；其无比的热诚与毅力，令他获推崇为世界首屈一指的资深宝石学家。

一直以来，珀勒第博士热心分享其研究成果，其著作可见于GRS自家出版的丛书系列 Contributions to Gemology 及多份国际知名期刊，包括美国《Gems & Gemology》、英国《Journal of Gemology》、澳洲《Australian Gemologist》、瑞士《Neue Zürcher Zeitung》、德国《Contributions to Mineralogy and Petrology》、荷兰《Earth and Planetary Science Letters》、美国《American Mineralogist》及其他矿物学期刊。他的著作亦屡获瑞士及欧洲电视节目报道。

由珀勒第博士签署的GRS宝石鉴定报告，屡获纽约、日内瓦、伦敦、巴黎及香港等地国际著名拍卖行的拍卖图录引用。现时珀勒第博士为GRS瑞士、法国、美国、香港、泰国及斯里兰卡公司的总裁及持有人。

2015 年，珀勒第博士于缅甸发现一种全新矿物 $Y^{3+}{}_2Mn^{2+}{}_4Fe^{2+}[Si_2B_8O_{24}]$ 矿物并以他命名为“珀勒第石”，赞扬其非凡成就。

More about our CEO

Dr. A. Peretti earned his PhD for “Mineral Formation in the Alps” from the Institute of Mineralogy and Petrography at the Swiss Federal Institute of Technology – ETH in Zurich, Switzerland. He also received an award from the University of Zurich for his masters’ thesis “Tectonics and Metamorphism in the Alps” with distinctive acknowledgment by both the British (FGA) and German (FGG) Gemmological Association.

In 1996 he founded GRS – an internationally recognized independent gemological research laboratory. Dr. Peretti’s numerous professional achievements have been lauded by the European Federation of Geologists (Paris, France) where he was awarded the distinction of European Geologist – 2000. Dr. Peretti’s ongoing laboratory research includes expeditions to mines, inspecting cutting and treatment centers, plus collaboration with major universities and research scientists; earning him recognition as one of the world’s foremost expert gemologists.

A prolific writer, his published research appears in Contributions to Gemology, a publication of GRS plus internationally recognized journals including Gems & Gemology (USA), Journal of Gemology (GB), Australian Gemologist (AUS), Neue Zürcher Zeitung (Switzerland), Contributions to Mineralogy and Petrology (GER), Earth and Planetary Science Letters (NL), American Mineralogist (USA) and other mineralogical publications. His work has also been featured on Swiss and other European television programs.

GRS Laboratory reports on important gemstones signed, Dr. A. Peretti have been referenced in catalogues of major auction houses in New York, Geneva, London, Paris and Hong Kong. Currently he serves as director and owner of GRS Switzerland, France, USA, Hong Kong, Thailand and Sri Lanka.

In 2015 Dr. Peretti discovered a new mineral, Perettiite-(Y), in Burma (Myanmar), which was named to honor him.

对宝石学界的贡献

GRS 对各种宝石的研究结果，于GRS官方网址的“Contributions to Gemology”部分供大众浏览及下载。所有研究、发现及刊物均由GRS自资出版。如欲订购《Contributions to Gemology》

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其他刊物

《鸽血红谷》
寻找缅甸抹谷红宝石之旅

比利时记者 Thierry Falise 与阿道夫·珀勒第博士携手制作的钜着，探索举世知名红宝石产地——缅甸抹谷的古往今昔。本书分英文、法文、中文及缅甸文版，所得收益将全数捐出以支援抹谷及缅甸艾滋病病童。

《传奇之绿》
寻找哥伦比亚祖母绿之旅

由哥伦比亚祖母绿矿工、矿主、切工师、经纪人和珠宝商现身说法，带你走进这种惊世宝石的奇幻世界。通过结合图片新闻学与宝石学的崭新角度，探索祖母绿引人入胜的历史，并点缀以精彩的王室珠宝、国际拍卖会及世界顶尖珠宝商故事。

GRS开创的各个评色名词备受国际认同，但亦因业界广泛采用而衍生出多个变化版本，导致释义变得含糊。有见及此，GRS新增了评色名词的子级别，以更精准地区分和描述同一色级内的不同颜色饱和度。

如欲订购此慈善著作，请浏览
www.gemresearch.ch/shop 或

Contributions to Gemology

GRS research publications on a variety of gemstone topics are available for viewing, downloading and purchasing online in the Contributions to Gemology section of GRS website. All research, findings and publications are produced in-house.

Visit: www.gemresearch.ch/shop
for a complete listing and ordering information to purchase hard-copies.

Other Publications

Pigeon Blood Valley
On the Trail of Mogok's Famed Burmese Ruby

The Belgian journalist Thierry Falise together with Dr. Adolf Peretti collaborated on this mesmerizing book about Mogok, digging deep into the history of this fascinating valley like no other publication has ever done before. Created in English, French, Chinese and Burmese, all profits of the book are donated to benefit children suffering from HIV in Mogok and Burma (Myanmar).

Magnificent Green
On the Trail of the Legendary Colombian Emerald

A fascinating journey into the Colombian emerald world told by its own people — miners, patrons, cutters, brokers and jewellers. Illuminated through the double prism of photo–journalism and gemmological expertise, an exclusive exploration of an enthralling history illustrated with stories from royal collections, international auctions and top jewellery houses.

Visit: www.gemresearch.ch/shop for your own copy of this charitable donation.


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