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SCHWEIZERISCHES GEMMOLOGISCHES INSTITUT
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SGG Zentralkurs in Meisterschwanden

Dienstag 21 April 2015

SSEF News

Dr. Michael S. Krzemnicki

Swiss Gemmological Institute SSEF

Photos © M.S. Krzemnicki, SSEF,
except where indicated otherwise



**New SSEF office
since January 2015:**

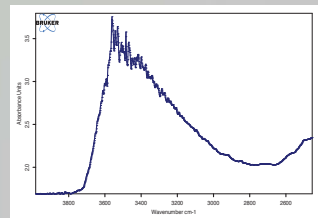
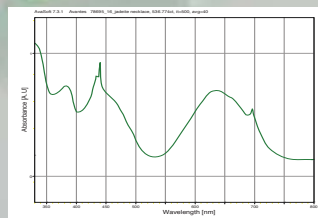
**Aeschengraben 26
4051 Basel**

© Swiss Gemmological Institute SSEF

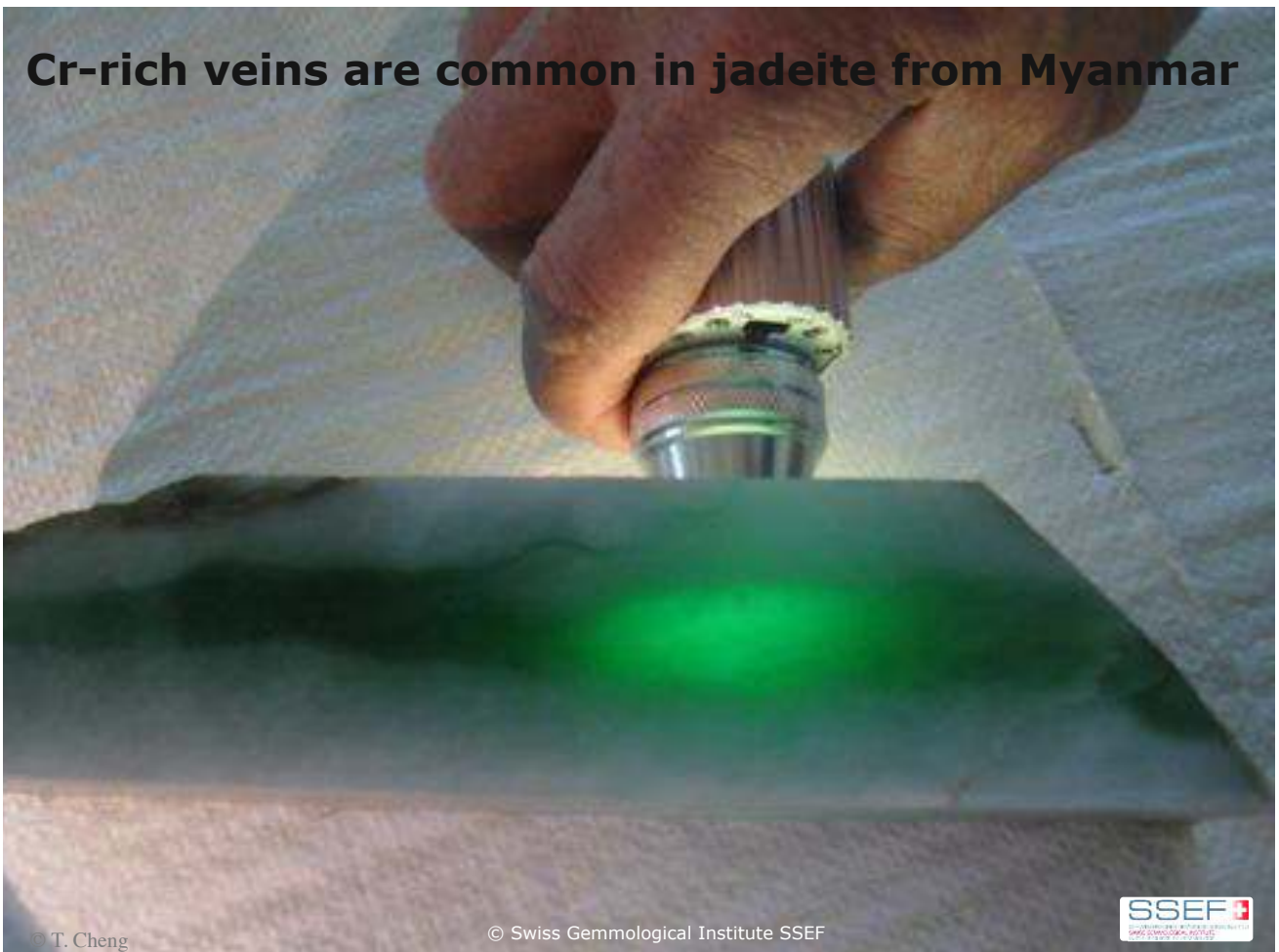




Jadeite with chromium-rich vein



Cr-rich veins are common in jadeite from Myanmar



Brazilian emerald

in jadeite-like
cutting &
setting



Jadeite necklace and ring.

© Swiss Gemmological Institute SSEF



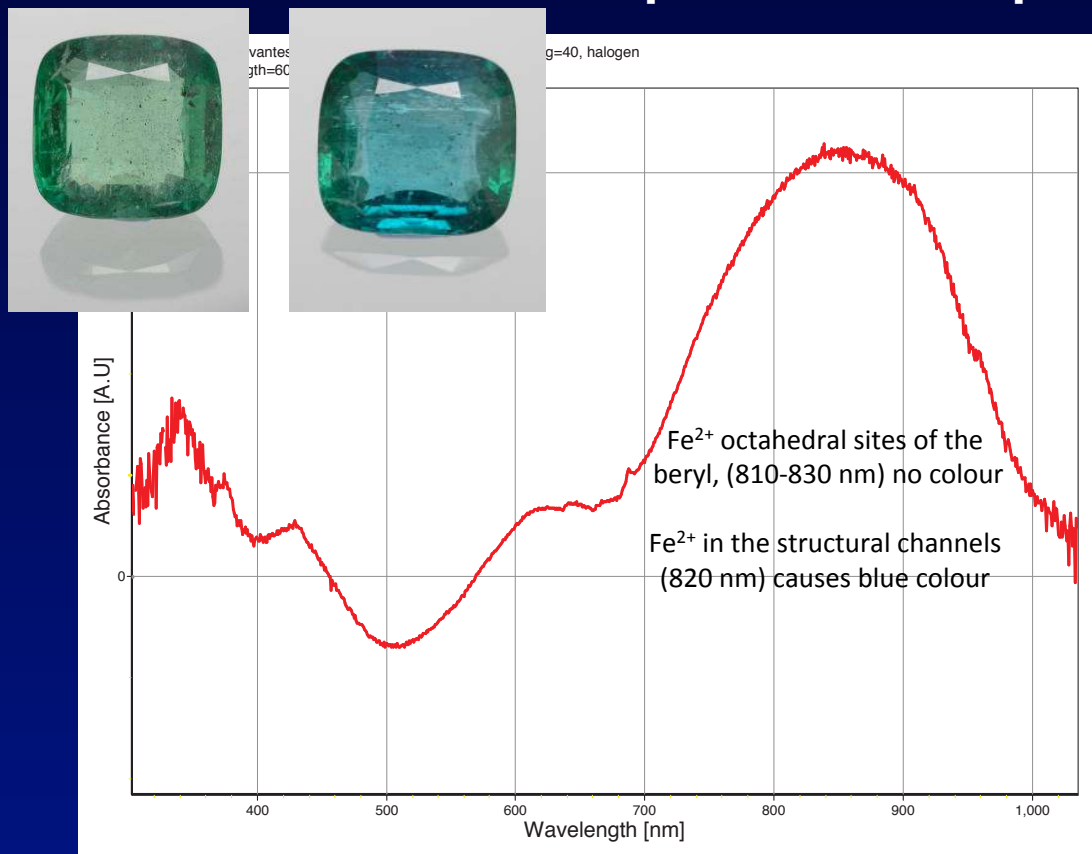
Emerald with engraving of Catherine the Great



Comparing this engraved portrait with historic paintings shows a very close resemblance, notably with the portraits of the Catherine the Great (1729 – 1796) Empress of the Russian Empire by William Dickinson (from 1773) and Virgilius Erichsen (from 1830), both being part nowadays of the State Hermitage Museum in Saint Petersburg (Russia).



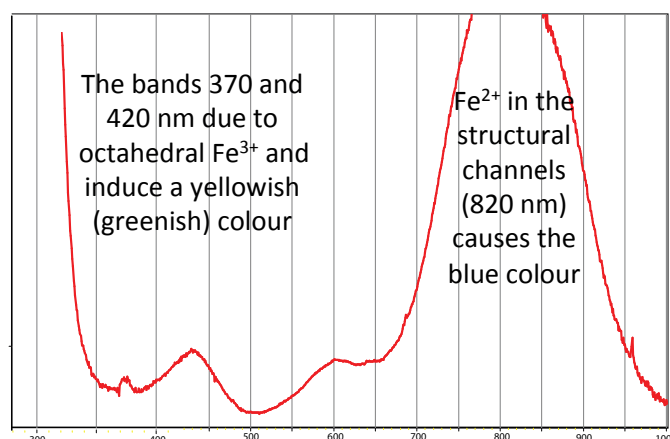
emerald with distinct aquamarine-component



Bluish green Cr-bearing **beryl** with dominating aquamarine-component



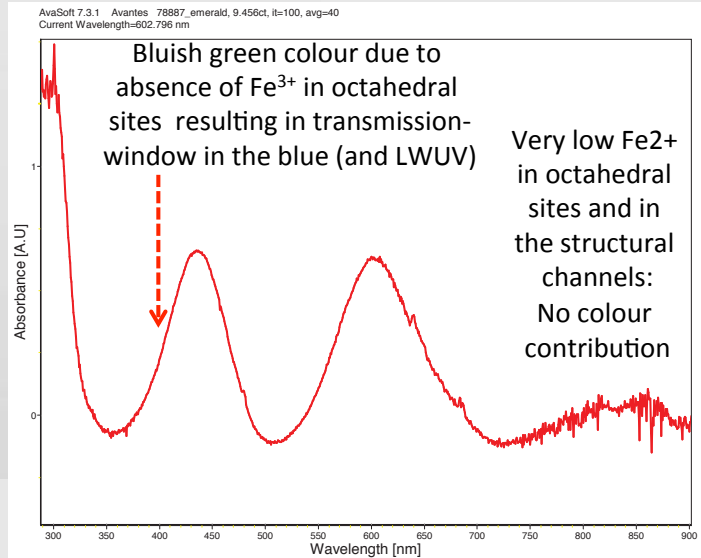
54.84 ct



Bluish green emerald with no aquamarine-component



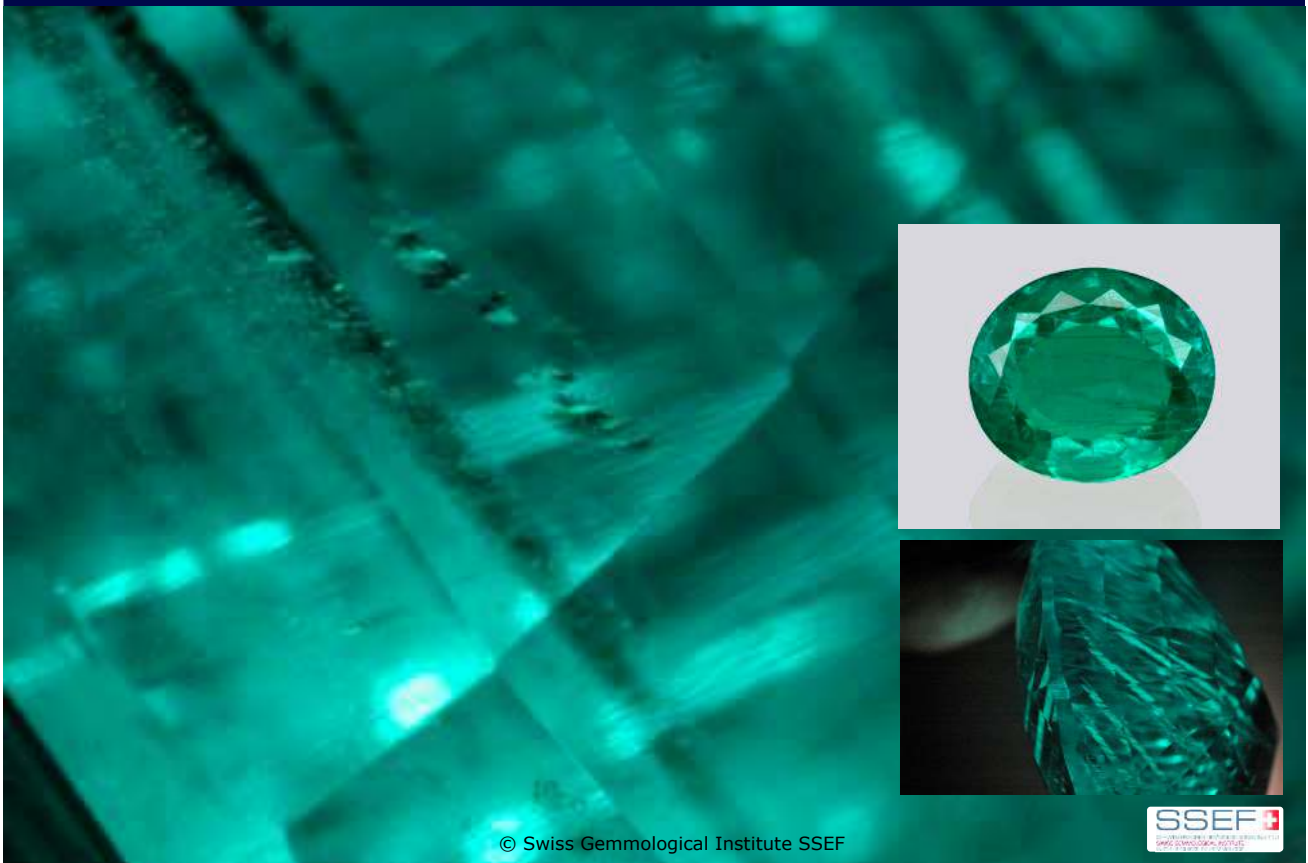
9.46 ct



© Swiss Gemmological Institute SSEF



Hydrothermal synthetic emerald of 67 ct



© Swiss Gemmological Institute SSEF



Emerald imitation: Foiled back topaz



La Belle of Asia...



Historical sapphire from Ceylon of 392.52 ct
Sold at auction in November 2014, World record \$17,295,796
SSEF report no. 72359

Exceptional Kashmir sapphires



Highly matching
in colour and
outstanding
clarity



© Swiss Gemmological Institute SSEF

BYG Sapphires from basaltic deposits



Photo: Sutas Singbamroon

Sapphires from Nigeria (Basaltic source)

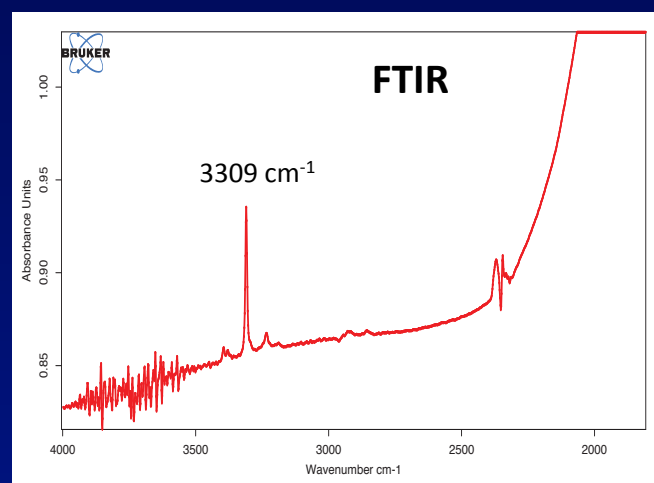
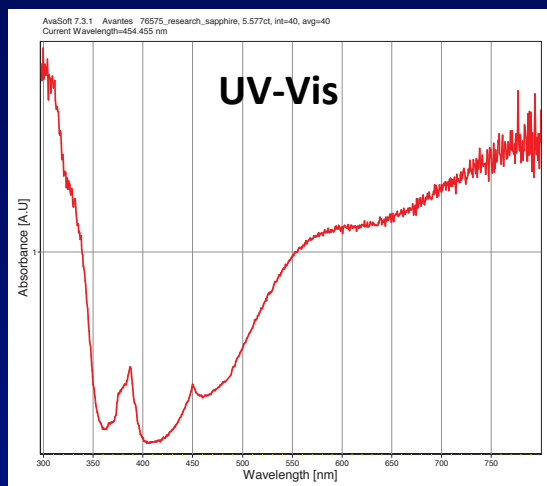


Photos & maps: V. Pardieu, 2014



Typical features of basaltic sapphires:

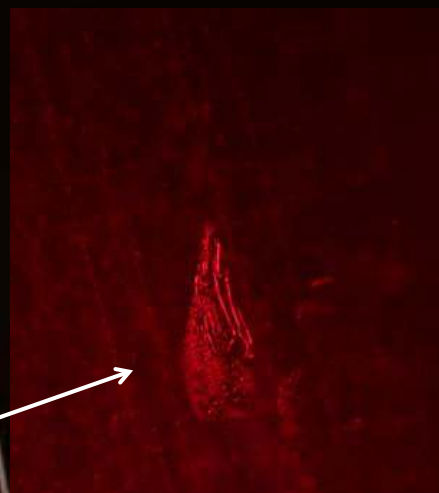
- Often greenish blue colour
- Quite often distinct milkyness
- Fe-rich: Characteristic absorption spectrum
- Distinct OH- (hydroxyl) in IR spectrum



Ruby

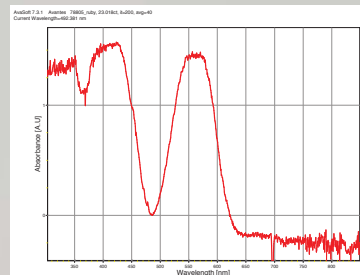


Heated ruby from Mozambique



Neo-healing fissure characteristic for heat treatment
(and FTIR peaks at 3309 cm⁻¹ with small side bands)

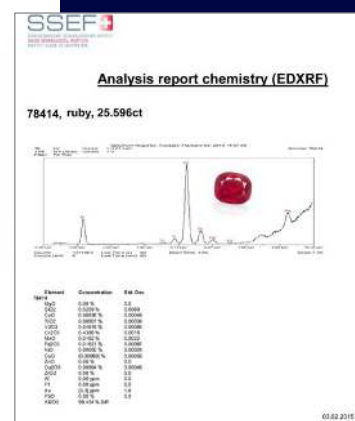
Exceptional unheated ruby from Mozambique 23 ct



© Swiss Gemmological Institute SSEF



New world record for ruby ?



The Sunrise ruby, a 25.59 ct Burmese ruby of "pigeon's blood" hue, will be offered at auction by **Sotheby's** Geneva on 12 May 2015 with an estimated value of \$12-18million.

Latest news 13th May 2015:
Sold for 30.3 million US\$



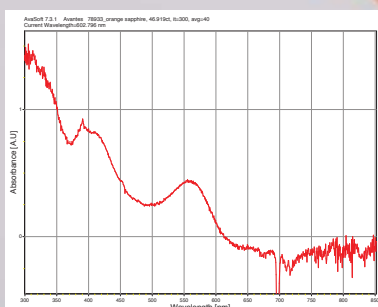
27 ct Burmese ruby in a historic setting



© Swiss Gemmological Institute SSEF



Padparadscha from Ceylon, 46 ct



Colour is a combination of Cr^{3+} , Fe^{3+} and yellow colour centre

© Swiss Gemmological Institute SSEF



Yellow sapphire with unstable colour

before fading test

after fading test

after LWUV exposure



18.09 ct

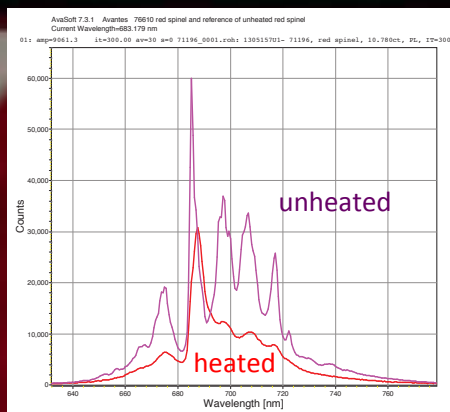
Heated spinel from Tanzania



Heat treatment rarely applied on spinels so far:

- Only limited enhancement
- Colour change only slight
- Fine milkyness is said to be reduced.

Heated spinel from Tanzania



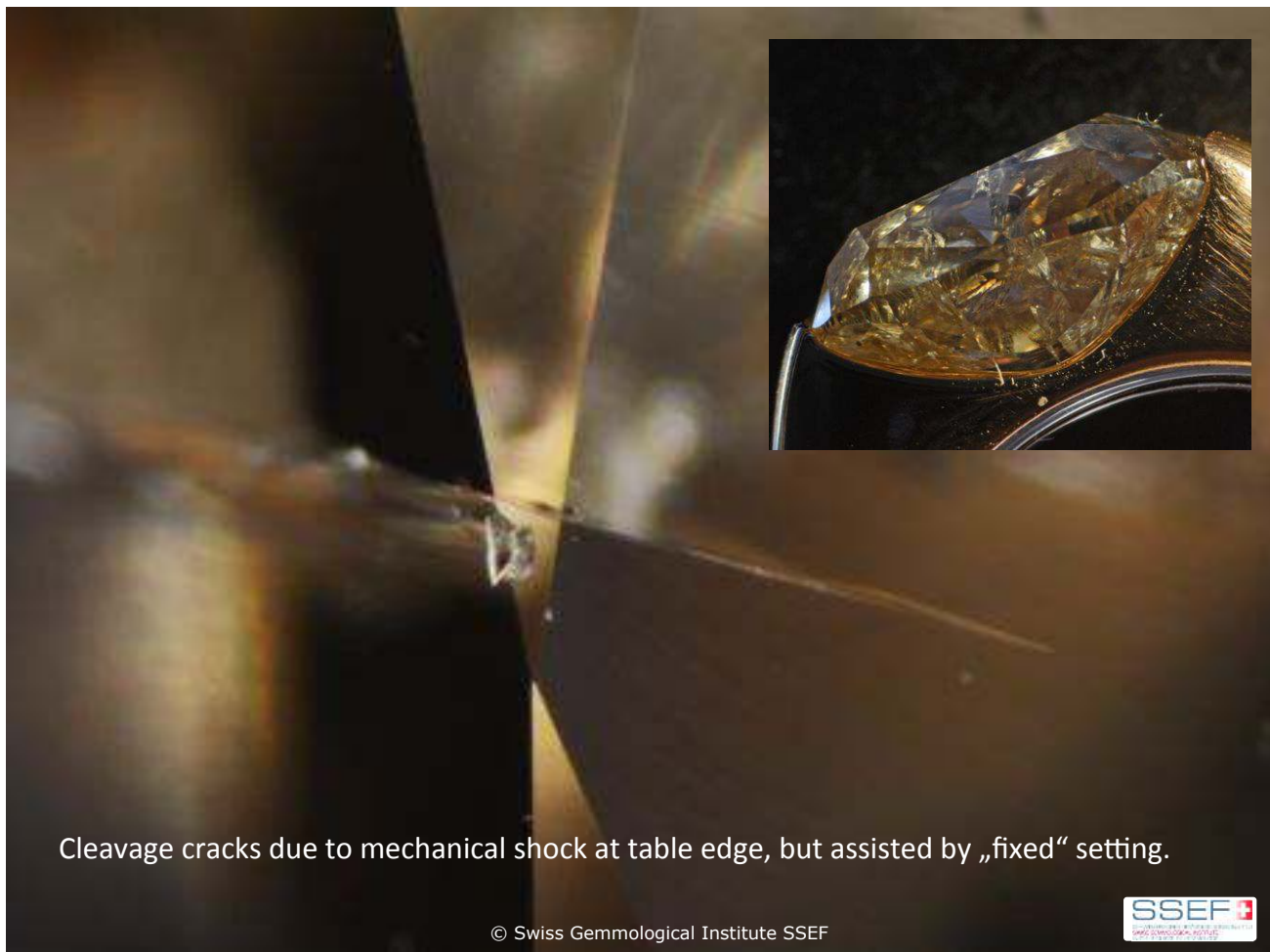
Diamond wi(n)dow



Diamond Crrrrracks...



Ca. 10 ct



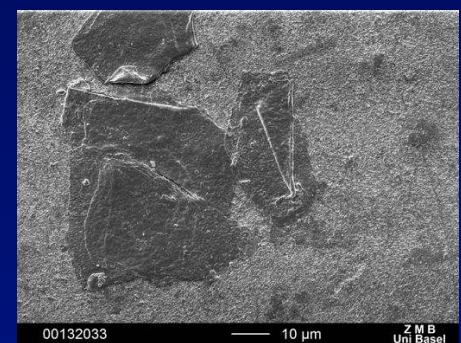
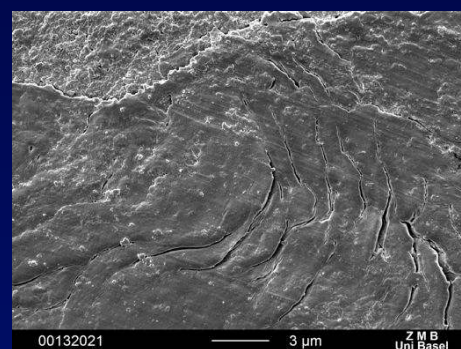
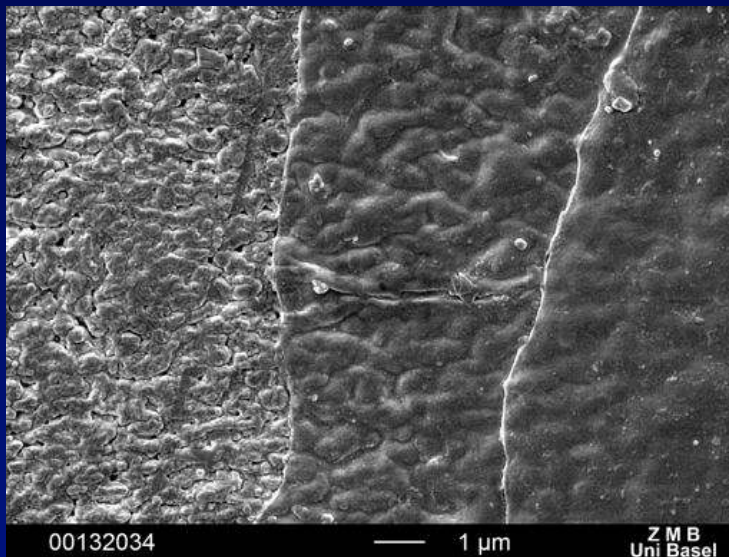
Cleavage cracks due to mechanical shock at table edge, but assisted by „fixed“ setting.

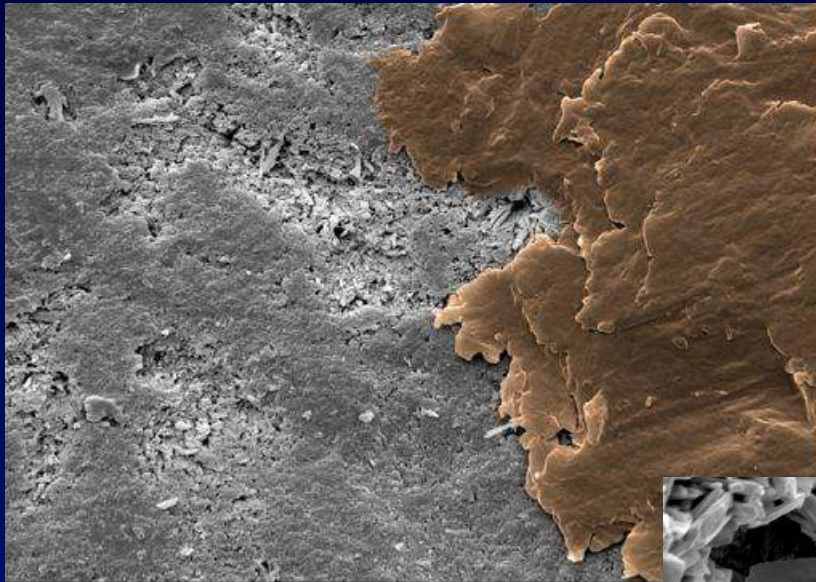
Surface alterations of Conch pearls:



Conch pearl with organic surface layer

Originally interpreted as a varnish = surface treatment (SSEF press release September 2013), this is in fact a natural organic cover often seen partially on conch pearls.



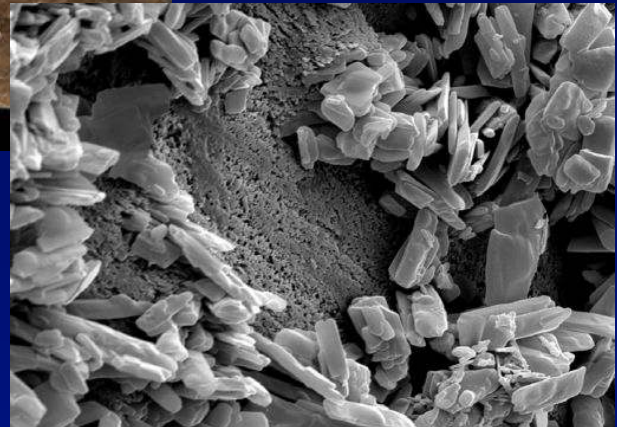


00130235 10 μm

Conch pearls with damaged (corroded) surface



Surface alteration (corrosion) due to exposure to acidic solutions



00130252 3 μm Z M B Uni Basel

Stability testing with cosmetics

EN 438-2 (NIHS 96-50-paragraph 6.8/6.9)

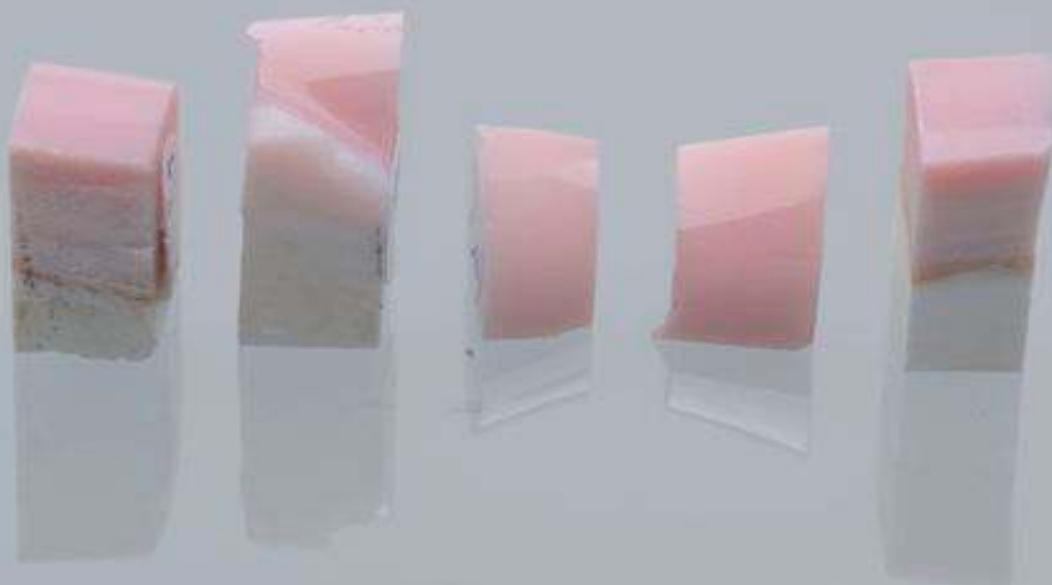
perfume

sun cream

hand cream

anti-insect

reference



Stability testing with sweat (synthetic)

ISO 3160-2 : 2003 and NIHS 96-50 : 2013



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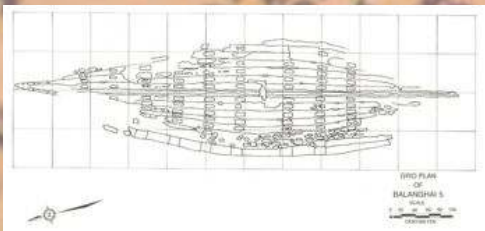


The Cirebon ship wreck (ca. 10th century)

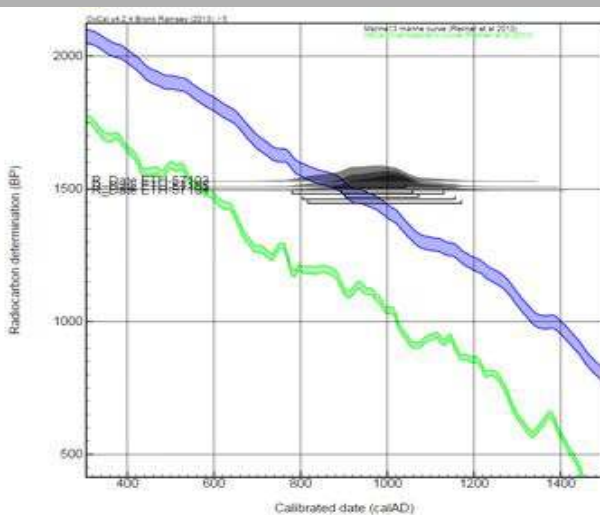


Pearls from the Cirebon wreck (ca. 10th century)

Chinese coins and ceramics firmly place the wreck in the 10th Century AD.



Radiocarbon age dating of these pearls



The ^{14}C dating perfectly fits with the assumed date of this ship wreck based on pottery and coins.

Project with ETH-Zurich





**Christie's
New York
14th April 2015
US\$ 5.1 million**

289 natural pearls of partly remarkable size (maximum diameter up to 12.65 mm approximately), strung on four smoothly and regularly graduated strands.

**Thank you for
your attention**



For more information, check www.ssef.ch

Facette



Facette



Facette

