The Journal of Gemmology
GemA The Gemmological Association of Great Britain

Colour-change Gems Bibliography

The list below is a compilation of all items on gem materials that exhibit colour-change or photochromic behaviour published in *The Journal of Gemmology* since its beginning in 1947 through 2025. Articles are listed from most recent to oldest.

Articles that are more than approximately two years old are publicly available in the *JoG* archive at https://gem-a.com/publications/the-journal-of-gemmology-archive, and more recent articles are accessible to Gem-A Members at https://gem-a.com/publications/the-journal-of-gemmology.

Gem Notes: Ni-bearing synthetic sapphires showing irreversible photochromism (2025)
By Sean O'Neal, Charles Evans and Guy Borenstein
Volume 39, No. 7, 629–631

Gem Notes: Photochromic yellow sapphire coloured by hole centres (2025)
By Féodor Blumentritt, Guillaume Zuber, Candice Caplan and Franck Notari
Volume 39, No. 5, 435–437

Properties and colouration of orange hackmanite from Afghanistan (2024)
By Féodor Blumentritt, Franck Notari and Candice Caplan
Volume 39, No. 2, 160–170

Gem Notes: Orange sodalite from Badakhshan, Afghanistan (2024)
By Michael S. Krzemnicki and Chanya Rochd
Volume 39, No. 1, 20–22

Gem Notes: Colour-change garnet showing blue colouration from Kamtonga, Kenya (2023)
By Clemens Schwarzinger
Volume 38, No. 6, 545–548

Gem Notes: Photochromism and phosphorescence of tugtupite (2023)
By Yujie Gao and Xueying Sun
Volume 38, No. 5, 429–431

Gem Notes: Photochromic scapolite from Baffin Island, Canada (2022)
By Emmanuel Fritsch and Cassandre Moinard
Volume 38, No. 2, 126–127

Gem Notes: Alexandrite with an uncommon deep red colour (2021)
By Riadh Zellagui and Christopher P. Smith
Volume 37, No. 8, 762–763

The discovery and naming of alexandrite and phenakite: Separating fact from fiction (2021)
By Karl Schmetzer and Evgenii Vladimirovich Burlakov
Volume 37, No. 5, 496–513

Gem Notes: Horsetail-like inclusions in a colour-change garnet from Tanzania (2021)
By Clemens Schwarzinger
Volume 37, No. 5, 448–449

Gem Notes: Colour-change garnet from Tanga, Tanzania (2020)
By J.C. (Hanco) Zwaan
Volume 37, No. 2, 133–134

Gem Notes: Colour-change tephroite from South Africa (2018)
By Jaroslav Hyršl
Volume 36, No. 4, 292

Colour-change axinite-(Mn) from Tanzania (2014)
By Cara Williams, Bear Williams and Brendan M. Laurs
Volume 34, No. 3, 191–102

Titanium-bearing synthetic alexandrite and chrysoberyl (2013)
By Karl Schmetzer, Heinz-Jürgen Bernhardt and Thomas Hainschwang
Volume 33, No. 5–6, 137–148

Synthetic alexandrites grown by the HOC method in Russia: internal features related to the growth technique and colorimetric investigation (2013)
By Karl Schmetzer, Heinz-Jürgen Bernhardt, Walter A. Balmer and Thomas Hainschwang
Volume 33, No. 5–6, 113–129

Flux-grown synthetic alexandrites from Creative Crystals Inc. (2012)
By Karl Schmetzer, Heinz-Jürgen Bernhardt and Thomas Hainschwang
Volume 33, No. 1–4, 49–81

Alexandrite and colour-change chrysoberyl from the Lake Manyara alexandrite-emerald deposit in northern Tanzania (2011)
By Karl Schmetzer and Anna-Kathrin Malsy
Volume 32, No. 5–8, 179–209

Measurement and interpretation of growth patterns in chrysoberyl, including alexandrite (2011)
By Karl Schmetzer, Heinz-Jürgen Bernhardt and Thomas Hainschwang
Volume 32, No. 5–8, 129–144

Colour-change garnets from Madagascar: variation of chemical, spectroscopic and colorimetric properties (2009)
By K. Schmetzer, H.-J. Bernhardt, G. Bosshart and T. Hainschwang
Volume 31, No. 5–8, 235–282

A colorimetric study of a tourmaline from Mozambique which shows a reverse alexandrite effect (2006)
By Yan Liu and B.A. Fry
Volume 30, No. 3–4, 201–206

The Usambara effect and its interaction with other colour change phenomena (2006)
By Asbjørn Halvorsen
Volume 30, No. 1–2, 1–21

Colour-change garnets from Madagascar: Comparison of colorimetric with chemical data (2001)
By Michael S. Krzemnicki, Henry A. Hänni and Eric Reusser
Volume 27, No. 7, 395–408

The cause of colour of the blue alexandrites from Malacacheta, Minas Gerais, Brazil (2000)
By M.V.B. Pinheiro, M.S. Basilio, K. Krambrock, M.S.S. Dantas, R. Paniago, A.I. Assunção and A.C. Pedrosa-Soares
Volume 27, No. 3, 161–170

Druses of synthetic alexandrite and synthetic phenakite from Russia (1999)
By Jaroslav Hyršl and Ivo Quintens
Volume 26, No. 7, 447–449

Colour hue change of a gem tourmaline from the Umba Valley, Tanzania (1999)
By Y. Liu, J.E. Shigley and A. Halvorsen
Volume 26, No. 6, 386–396

A colorimetric study of the alexandrite effect in gemstones (1999)
By Y. Liu, J.E. Shigley, E. Fritsch and S. Hemphill
Volume 26, No. 6, 371–385

Letter to the Editor (1997)
By Asbørn Halvorsen and Brenda Jensen
Volume 25, No. 7, 491–492

Letter to the Editor (1997)
By K. Nassau
Volume 25, No. 7, 491

Characterization of alexandrite, emerald and phenakite from Franqueira (NW Spain) (1997)
By C. Marcos-Pascual and D.B. Moreiras
Volume 25, No. 5, 340–357

A new colour-change effect (1997)
By A. Halvorsen and B.B. Jensen
Volume 25, No. 5, 325–330

The location, geology, mineralogy and gem deposits of alexandrite, cat's-eye and chrysobery in Brazil (1993)
By Jacques Cassedanne and Maurice Roditi
Volume 23, No. 6, 333–354

The gemmological characteristics of Inamori synthetic cat's-eye alexandrite chrysoberyl (1988)
By John I. Koivula, Emmanuel Fritsch and Chuck Fryer
Volume 21, No. 4, 232–236

Letter to the Editor (1989)
By Karl Schmetzer
Volume 21, No. 5, 329

Alexandrite: Natural or synthetic? (1988)
By H. Bank, E. Gübelin, U. Henn and J. Malley
Volume 21, No. 4, 215–217

Colour-changing chromiferous tourmalines from East Africa (1988)
By Hermann Bank and Ulrich Henn
Volume 21, No. 2, 102–103

Blue colour-changing kyanite from East Africa (1982)
By G. Bosshart, E. Frank, H.A. Hänni and N. Barot
Volume 18, No. 3, 205–212

On monazite inclusions (1981)
By S. Hornytzkyj
Volume 17, No. 6, 373–380

An unusual tourmaline (1980)
By Stephen R. Jones
Volume 17, No. 1, 4–6

Blue colour-change gem garnet from East Africa (1975)
By E.A. Jobbins, J.M. Saul, Anne E. Tresham and B.R. Young
Volume 14, No. 5, 201–208

A gem garnet from the island of Otterøy (1971)
By Jens Hysingjord
Volume 12, No. 7, 296–300

Random notes (1954)
By J.R.H. Chisholm
Volume 4, No. 7, 292–300

Selective reflection and its possible bearing on gemmology (1947)
By M.S.S. Lewis
Volume 1, No. 4, 10–14