Blue, *rewritten.* Blugene



A new origin for the blue that belongs to denim.

Denim is everyday life. So is our approach *to its blue.*

Blugene rethinks where indigo begins. Developed by CutisBio, it uses microbial fermentation to turn plant-derived carbon into the colour at the heart of denim.

01

Natural Origin

98% bio-based Carbon from corn and plants

02

Skin Safety

A board-certified dermatologist oversees every step, from production to dyeing.

03

No Compromise in detail

Aniline and N-methylaniline not detected in 3rd party testing

04

Versatile Shades

Repeated dips. A spectrum of indigo shades.

Blugene : Bio-based Indigo, Crafted Through Fermentation.

A different beginning.

Blugene chose a precision fermentation process that follows the carbon cycle. Our choice raises sustainability for the environment and for our lives.

98%

BIOBASED CARBON CONTENT

Measured in the organic carbon of the tested Blugene sample



01 **Plant-derived feedstock**

Renewable biomass provides the carbon.

02 **Microbial fermentation**

Living cells make indigo through a biosynthetic pathway.

03 **Recovery & formulation**

Indigo is recovered and prepared as dye powder or ink.

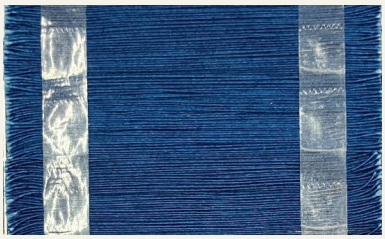
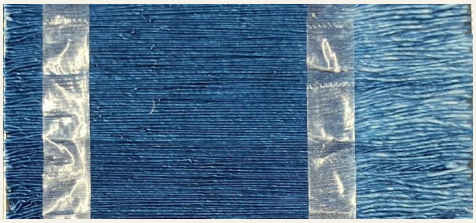
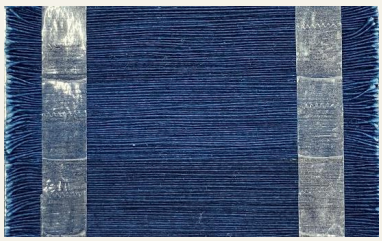
04 **Dyeing & printing**

Develop colour on yarn and fabric with your mill.

KATRI · ASTM D6866-24a Method B (AMS)
Report SBED25-00000153-1 · 22 May 2025. [1]
98% is a carbon-origin result, not dye purity or a carbon-emissions reduction figure.

Your brand.
Your blue.

Explore the colour after 4, 6 and 8 dyeing cycles, then compare the yarn after one wash.

CYCLES		DYED YARN	AFTER 1 WASH
4	Blugene 1 Petrochemical indigo Blugene 2		
6	Blugene 1 Petrochemical indigo Blugene 2		
8	Blugene 1 Petrochemical indigo Blugene 2		

Photographic yarn comparison supplied by CutisBio. In each image, from top to bottom: Blugene 1, petrochemical indigo, Blugene 2. [2]

Visual comparison only. Approve the final shade and wash-down on your own fabric; these photographs are not instrumental colour measurements.

Performance, *on the record.*

Selected results for fabrics dyed with CutisBio bio indigo. The original grades are reproduced below. [3]

TEST / MEASURE	COTTON #7	SILK #8	CASHMERE #9
Laundering / colour change	4-5	4-5	4-5
Light / colour change	4	4-5	4-5
Rubbing, dry / warp : weft	4-5 : 4-5	4-5 : 4-5	2 : 2-3
Rubbing, wet / warp : weft	4 : 4	4 : 3-4	3 : 3-4
Perspiration / colour change*	4-5 : 4-5	4 : 3	4-5 : 4-5
Perspiration / staining**	4-5	4-5	4-5

* Acid : alkaline. ** All six adjacent fibres in both acid and alkaline conditions. Grades apply to the listed samples and methods; they do not predict every denim construction or finish.

METHODS IN THE SOURCE CATALOGUE

Laundering: KS K ISO 105-C06:2010, A2S
Light: KS K ISO 105-B02:2014, Exposure Cycle A1, Method 5
Rubbing: KS K ISO 105-X12:2016
Perspiration: KS K ISO 105-E04:2013

Agree shade, rubbing fastness and wash-down targets on your own pilot fabric.

Indigo, *beyond denim.*





One colour.
Different material
voices.



Right: a Korean jeogori reinterpreted with Blugene, exhibited in Los Angeles with Kolon FnC. Left: denim details supplied by CutisBio. [2,6]

Designed with *skin in mind.*



CHOI WONWOO, M.D., Ph.D.

Board-certified dermatologist

Blugene director

A board-certified dermatologist oversees every step, from production to dyeing.

Denim is worn every day, often for years. Blugene brings a dermatologist's perspective to the full journey of its colour: from plant-derived feedstock and microbial fermentation to dyeing, with close attention to trace impurities and how skin safety can be assessed. [2]

THREE QUESTIONS GUIDE US

01 Where does the carbon come from?

02 Which trace impurities remain?

03 How can skin safety be assessed?

BLUGENE SKIN SAFETY FIRST PROGRAM

We can partner with denim and jeans brands to arrange third-party testing of artificial-sweat extracts from fabrics dyed with Blugene indigo, including single-application and cumulative skin irritation studies.

We can provide participating brands with laboratory reports and fabric-specific test summaries to support clear, evidence-based product communication.

Results apply to the tested fabric extracts and study conditions.

Blugene
DERMATOLOGICALLY TESTED
DENIM FABRIC EXTRACT

No Compromise *in detail*

Aniline and N-methylaniline not detected in third-party testing.

ANILINE

Not detected < 5 mg/kg

N-METHYLANILINE

Not detected < 5 mg/kg

Tested Blugene dye sample: KOTERI 2025-0604-1132-C03, 10 June 2025; KS K 0734:2019; method detection limit (MDL) 5 mg/kg. N.D. means below the MDL, not zero. This result does not certify finished-garment skin safety. [4]

HOW REGULATORS CLASSIFY THEM

SELECTED EU CLP HAZARDS / IARC

Aniline

$C_6H_5NH_2$ / CAS 62-53-3

Toxic in contact with skin (H311)
May cause an allergic skin reaction (H317)
Causes serious eye damage (H318)
Suspected of causing genetic defects (H341)
Suspected of causing cancer (H351)
Causes damage to organs through prolonged or repeated exposure (H372)
IARC Group 2A - probably carcinogenic to humans

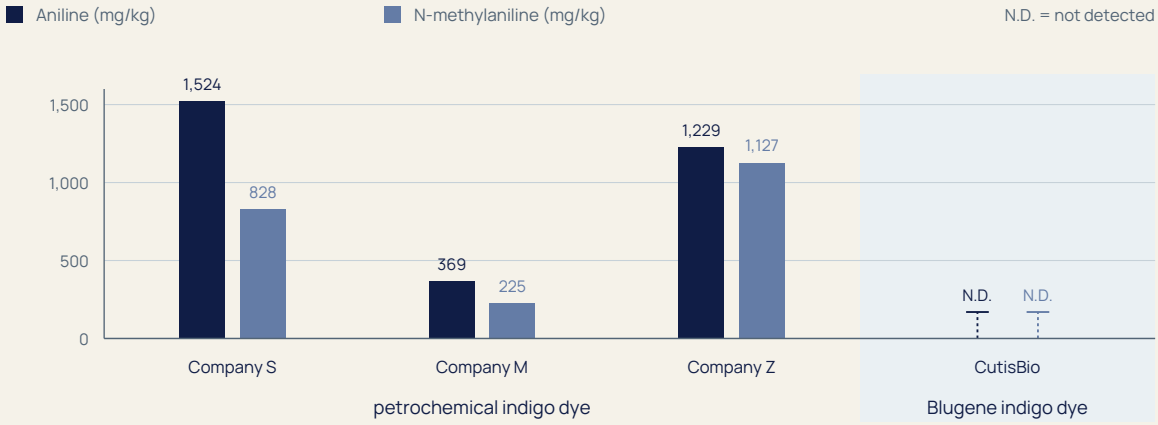
N-methylaniline

$C_6H_5NHCH_3$ / CAS 100-61-8

Toxic in contact with skin (H311)
Toxic if swallowed or inhaled (H301 / H331)
May cause damage to organs through prolonged or repeated exposure (H373)

These describe the substances. Garment risk depends on exposure. [7,8]

Aniline and N-methylaniline in tested indigo dyes



Selected tested samples, not a market-wide comparison. Source: catalogue p.5, Table 2-3; KOTERI reports 2025-0604-1132-C03 and 2025-0624-1268; KS K 0734:2019; MDL 5 mg/kg. [4] Hazard context: EU CLP Annex VI; IARC Vol. 127 (2021, evaluation 2020). [7,8]

A story your team *can examine.*

The catalogue publishes third-party documents alongside test results. Ask us for the current documents for your sourcing review.

01 ZDHC MRSL

Level 1 · Version 3.1

H682-25-00154 · FITI

CB Bio Indigo Dye Powder. Document valid to 9 June 2027.

02 OEKO-TEX® ECO PASSPORT

Textile chemical assessment

E2AGHSST4 · Centexbel

Product scope is in the certificate enclosure.

03 USDA BioPreferred®

Certified biobased product label

98% stated on the label

Catalogue participation certificate names CB Bio Indigo Dye Powder.

04 TÜV AUSTRIA OK biobased

Class 5 · 97-100% biobased carbon

TA8072609668

CB Bio Indigo Dye Powder. Document valid to 17 February 2031.

Document details transcribed from the July 2026 catalogue; not a live registry verification. Confirm current status and the ECO PASSPORT enclosure before specifying. Certification is product-specific and does not automatically cover ink or finished jeans. [5]

From colour *to material.*

Two product forms. A physical fabric to begin with.

01 / INDIGO POWDER

For yarn and fabric dyeing



Develop your shade on cotton and explore silk or cashmere. Dyeing and colourfastness data are available in the catalogue.

CAS 482-89-3

02 / DIGITAL PRINTING INK

For pattern-led development



Explore indigo in digitally printed textiles. Discuss substrate, print system and finishing conditions before sampling.

Ask Denim Sample

We work with premium denim dyeing specialists in Japan and Turkey to offer a diverse range of denim fabrics.



Samples are available on request.
Contact us anytime.

From first swatch *to a collection.*

Bring your aesthetic. Bring your mill.
Let us explore the blue together.

01 **Share the brief**

Tell us your fabric construction, fibre blend, target shade, desired wash-down and intended volume.

02 **Develop the colour**

Request a sample and build a mill trial around your dyeing process. Compare the fabric against an approved shade standard.

03 **Review the evidence**

Evaluate colourfastness and finishing performance. Review current technical and certification documents for the specified product.

04 **Plan the capsule**

Agree the material specification, sampling needs and supply terms. Build a product story matched to the evidence.

SAMPLES & JOINT SHADE DEVELOPMENT

Let's make your next denim with **Blugene.**

REQUEST A SAMPLE. START A CONVERSATION.

blugene.co

contact@cutisbio.com

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SCAN TO BEGIN

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8F Apgujeong B/D, 842 Nonhyeon-ro, Gangnam-gu,
Seoul 06025, Republic of Korea

Evidence: [1] Catalogue p.3, Table 1-1. [2] blugene.co/en: Brand and Dyeing Performance. [3] Catalogue p.6, Tables 3-1 to 3-4. [4] Catalogue p.5, Table 2-3. [5] Catalogue pp.10-11. [6] CutisBio-supplied photographs and sample image, 9 October 2026. [7] EU CLP Annex VI / ECHA: aniline and N-methylaniline. [8] IARC Monographs Vol. 127 (2021). Catalogue: CutisBio CB Bioindigo, July 2026. Full documents: blugene.co/en/data-certifications. Cover: AI-generated editorial image based on a supplied denim reference.

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