



**28<sup>th</sup> March 2025**

To  
Manager (CRD)  
**Bombay Stock Exchange Ltd. (BSE)**  
P.J. Towers, Dalal Street,  
Mumbai 400 001

Manager (CRD)  
**National Stock Exchange of India Ltd. (NSE)**  
Exchange Plaza, Bandra Kurla Complex  
Bandra (E), Mumbai - 400051

**Ref: Script Code- 516064**  
**Sub. : Grant of Patent**

**Script Code- ARROWGREEN**

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Dear Sir,

We are pleased to inform you that Mr. Shilpan Patel, Chairman & Managing Director of the Company had been granted the Patent Titled: "**Dual-Color Shift Security Film**" for the territory of the United States of America under the provisions of the Patent Act, bearing **Patent No. 12194771** was granted on the 14<sup>th</sup> January 2025.

Mr. Shilpan Patel through a Deed of Assignment dated 17<sup>th</sup> February 2024 assigned /transferred full or exclusive right of the patent to Arrow Greentech Limited ('the Company'). A note and a certificate on the same are attached.

Thanking you,

Yours faithfully,

**For Arrow Greentech Limited**

**Poonam Bansal**  
**Company Secretary**

**ARROW GREENTECH LTD**

CIN No.: L21010MH1992PLC069281

Registered Office: 1/F Laxmi Industrial Estate, New Link Road, Andheri (West), Mumbai 400 053, Maharashtra,

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Works: Plot No 531 0,5311, GIDC, Ankleshwar 392002, Gujarat, INDIA Phone : +912646-224743/224744 E-mail : [ank@arrowgreentech.com](mailto:ank@arrowgreentech.com)



## **Announcement of Grant of "Dual-Color Shift Security Film" Patent in the United States of America.**

Arrow Greentech Limited (AGTL) has received a grant for patent titled "**Dual-Color Shift Security Film**" Patent No. **12194771** on 14<sup>th</sup> January 2025, for the territory of the **United States of America** under the provisions of the Patent Act, Certificate is attached.

IP Cell has informed, 'This invention is about a type of Security film used in security features for important documents, like banknotes, ID cards, or passports. The film changes color when viewed from different angles, making it hard for counterfeiters to copy. What makes this version better than its predecessors is that it can show multiple colors or a dual-color effect, adding an extra layer of security. The patent also covers ways to manufacture this improved security film.'

### **APPLICATIONS OF THE PATENT:**

- Dual-Color Shift Security Film can be mainly used to prevent counterfeiting of valuable documents.
- Dual-Color Shift Security Film can be slit and used as Security Threads in valuable documents.
- The valuable documents include but are not limited to Banknotes, Share Certificates, Bond Documents, Certificates, Checks, Passports, Other identification documents, Stamp Papers, etc.

Arrow Greentech Limited is a pioneer in manufacturing eco-friendly products and high tech anti-counterfeit products, by a unique method using our experience in chemistry, coating and casting. Arrow's R&D department has many years' experience in different fields e.g. Coatings, Security Printing and Casting Films. It shall be Arrow Greentech Limited's on-going endeavor to commercialize these patents appropriately.

Arrow firmly believes in protecting its Intellectual Property and respects IP grants of other inventors.

### **Safe Harbor Statement**

This announcement contains forward-looking statements. Arrow may also make forward-looking statements in our periodic reports to the Stock Exchanges as per prevalent rules and in its annual report to shareholders, in its proxy statements, in its offering circulars and prospectuses, in press releases and other written materials and in oral statements made by its officers, directors or employees, to third parties. Arrow assumes no obligation to update the forward-looking statements in this release and elsewhere. Statements that are not historical facts, including statements about our beliefs and expectations, are forward-looking statements. Forward-looking statements involve inherent risks and uncertainties. A number of important factors could cause actual results to differ materially from those contained in any forward-looking statement.

### **ARROW GREENTECH LTD**

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United  
States  
of  
America

*To Promote the Progress*

*of Science and Useful Arts*

*The Director*

*of the United States Patent and Trademark Office has received  
an application for a patent for a new and useful invention. The title  
and description of the invention are enclosed. The requirements  
of law have been complied with, and it has been determined that  
a patent on the invention shall be granted under the law.*

*Therefore, this United States*

*Patent*

grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America, and if the invention is a process, of the right to exclude others from using, offering for sale or selling throughout the United States of America, products made by that process, for the term set forth in 35 U.S.C. 154(a)(2) or (c)(1), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b). See the Maintenance Fee Notice on the inside of the cover.

*David A. Brent*

ACTING DIRECTOR OF THE UNITED STATES PATENT AND TRADEMARK OFFICE

## Maintenance Fee Notice

If the application for this patent was filed on or after December 12, 1980, maintenance fees are due three years and six months, seven years and six months, and eleven years and six months after the date of this grant, or within a grace period of six months thereafter upon payment of a surcharge as provided by law. The amount, number and timing of the maintenance fees required may be changed by law or regulation. Unless payment of the applicable maintenance fee is received in the United States Patent and Trademark Office on or before the date the fee is due or within a grace period of six months thereafter, the patent will expire as of the end of such grace period.

## Patent Term Notice

If the application for this patent was filed on or after June 8, 1995, the term of this patent begins on the date on which this patent issues and ends twenty years from the filing date of the application or, if the application contains a specific reference to an earlier filed application or applications under 35 U.S.C. 120, 121, 365(c), or 386(c), twenty years from the filing date of the earliest such application (“the twenty-year term”), subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b), and any extension as provided by 35 U.S.C. 154(b) or 156 or any disclaimer under 35 U.S.C. 253.

If this application was filed prior to June 8, 1995, the term of this patent begins on the date on which this patent issues and ends on the later of seventeen years from the date of the grant of this patent or the twenty-year term set forth above for patents resulting from applications filed on or after June 8, 1995, subject to the payment of maintenance fees as provided by 35 U.S.C. 41(b) and any extension as provided by 35 U.S.C. 156 or any disclaimer under 35 U.S.C. 253.



US012194771B2

(12) **United States Patent**  
**Patel**

(10) **Patent No.:** **US 12,194,771 B2**  
(45) **Date of Patent:** **Jan. 14, 2025**

(54) **DUAL-COLOR SHIFT SECURITY FILM**

(56) **References Cited**

(71) Applicant: **Shilpan Pravinchandra Patel**, Mumbai (IN)

**U.S. PATENT DOCUMENTS**

2010/0270379 A1 \* 10/2010 Lister ..... B42D 25/29

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2021/0031553 A1 \* 2/2021 Brehm ..... B42D 25/373

(72) Inventor: **Shilpan Pravinchandra Patel**, Mumbai (IN)

**FOREIGN PATENT DOCUMENTS**

(\*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

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(21) Appl. No.: **18/005,911**

(22) PCT Filed: **Jul. 19, 2021**

(86) PCT No.: **PCT/IN2021/050697**

§ 371 (c)(1),

(2) Date: **Jan. 18, 2023**

**OTHER PUBLICATIONS**

International Search Report mailed Oct. 12, 2021 (2 pages).  
Examination Report/Office Action for corresponding Indian Patent Application No. 202021011994 dated Mar. 31, 2023.

(87) PCT Pub. No.: **WO2022/018752**

PCT Pub. Date: **Jan. 27, 2022**

\* cited by examiner

(65) **Prior Publication Data**

US 2023/0286313 A1 Sep. 14, 2023

*Primary Examiner* — Justin V Lewis

(74) *Attorney, Agent, or Firm* — Sandberg Phoenix & von Gontard PC

(30) **Foreign Application Priority Data**

Jul. 19, 2020 (IN) ..... 202021011994

(57) **ABSTRACT**

(51) **Int. Cl.**

**B42D 25/364** (2014.01)

**B42D 25/47** (2014.01)

(52) **U.S. Cl.**

CPC ..... **B42D 25/364** (2014.10); **B42D 25/47** (2014.10)

The present invention provides a security film (100) with dual color shift characteristics, the security film (100) comprising a substrate layer (110) having a first substrate surface (112) and a second substrate surface (114), a first liquid crystal layer (120), including a first liquid crystalline material, disposed above the first substrate surface (112), and a second liquid crystal layer (130), including a second liquid crystalline material, disposed above the second substrate surface (114). The first liquid crystal layer (120) and the second liquid crystal layer (130) are adapted to exhibit dual color shifts, on rotation and/or translation of the security film (100). Also, a method (200) for manufacturing the security film (100) has also been provided.

(58) **Field of Classification Search**

CPC ..... B42D 25/364; B42D 25/47; B42D 25/45

USPC ..... 283/67, 72, 94, 98, 901

See application file for complete search history.

**7 Claims, 8 Drawing Sheets**

