



**INTELLECTUAL  
PROPERTY INDIA**

PATENTS | DESIGNS | TRADE MARKS  
GEOGRAPHICAL INDICATIONS



सत्यमेव जयते

भारत सरकार  
GOVERNMENT OF INDIA

पेटेंट कार्यालय  
THE PATENT OFFICE

पेटेंट प्रमाणपत्र  
PATENT CERTIFICATE  
(Rule 74 Of The Patents Rules)

क्रमांक : 044126674  
SL No :



पेटेंट सं. / Patent No. : 357555  
आवेदन सं. / Application No. : 146/CHE/2015  
फाइल करने की तारीख / Date of Filing : 09/01/2015  
पेटेंटी / Patentee : INDIAN INSTITUTE OF TECHNOLOGY MADRAS (IIT  
Madras)

प्रमाणित किया जाता है कि पेटेंटी को उपरोक्त आवेदन में यथाप्रकटित ALTERNATE DRYING MECHANISM AND WATER EXTRACTION IN WASHING MACHINES नामक आविष्कार के लिए, पेटेंट अधिनियम, १९७० के उपबंधों के अनुसार आज तारीख 9th day of January 2015 से बीस वर्ष की अवधि के लिए पेटेंट अनुदत्त किया गया है।

It is hereby certified that a patent has been granted to the patentee for an invention entitled ALTERNATE DRYING MECHANISM AND WATER EXTRACTION IN WASHING MACHINES as disclosed in the above mentioned application for the term of 20 years from the 9th day of January 2015 in accordance with the provisions of the Patents Act, 1970.



अनुदान की तारीख : 02/02/2021  
Date of Grant :

पेटेंट नियंत्रक  
Controller of Patent

टिप्पणी - इस पेटेंट के नवीकरण के लिए फीस, यदि इसे बनाए रखा जाना है, 9th day of January 2017 को और उसके पश्चात प्रत्येक वर्ष में उसी दिन देय होगी।

Note. - The fees for renewal of this patent, if it is to be maintained will fall / has fallen due on 9th day of January 2017 and on the same day in every year thereafter.



**INTELLECTUAL  
PROPERTY INDIA**

एकस्व/PATENTS|अभिकल्प/DESIGNS|  
व्यापार चिह्न/TRADE MARKS|भौगोलिक  
उपदर्शन/GEOGRAPHICAL INDICATIONS



सत्यमेव जयते

**भारत सरकार  
GOVERNMENT OF INDIA**

एकस्व कार्यालय / THE PATENT OFFICE  
बौद्धिक सम्पदा भवन / I.P.O. BUILDING  
जी.एस.टी.रोड, गिंडी / G.S.T.Road, Guindy,  
चेन्नई / Chennai- 600032  
दूरभाष / Tel. No. : (091)(044)22502081-84  
फैक्स / Fax: 044 22502066

Email/ई मेल : [Chennai-patent@nic.in](mailto:Chennai-patent@nic.in)  
वेबसाइट / Website: <http://ipindia.nic.in>

सं. \ No. 146/CHE/2015

दिनांक \ Dated the 02/02/2021

सेवा मे, \ To :

Address of Service:- D. MOSES JEYAKARAN, ADVOCATE & PATENT AGENT, IN/PA-369, 245/105, METTU STREET, AYANAVARAM,  
CHENNAI - 600023, mjeyakaran@yahoo.com

Email Id:- mjeyakaran@yahoo.com

विषय :- पेटेंट आवेदन संख्या 146/CHE/2015 के संबंध में अधिनियम की धारा 43 के तहत पेटेंट अनुदान तथा पेटेंट रजिस्टर में प्रविष्टि की सूचना  
Sub :- Intimation of the grant and recordal of patent under section 43 of the Act in respect of patent application no. 146/CHE/2015

महोदय/महोदया,  
Sir/Madam,

आपको सूचित किया जाता है कि पेटेंट अधिनियम, 1970 की धारा 12 व 13 तथा उस आधार पर बने नियम के तहत उपर्युक्त पेटेंट आवेदन के परीक्षण [व 01/12/2020 को हुई सुनवाई] के उपरान्त एतद्वारा पेटेंट अनुदान किया जाता है। तथा पेटेंट अनुदान की प्रविष्टि 02/02/2021 को पेटेंट रजिस्टर में कर दी गयी है।

This is to Inform you that following the examination of above mentioned patent application under section 12 and 13 of The Patents Act, 1970 and Rules made thereunder [and hearing held on 01/12/2020 ] a patent is hereby granted and recorded in the Register of Patents on the 02/02/2021. The Patent Certificate is enclosed herewith.

|                                                                                 |                                                                       |
|---------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| पेटेंट संख्या \ Patent No                                                       | : 357555                                                              |
| आवेदक का नाम \ Name Of Applicant                                                | : INDIAN INSTITUTE OF TECHNOLOGY MADRAS (IIT Madras)                  |
| पेटेंट दिनांक \ Date of Patent                                                  | : 09/01/2015                                                          |
| पूर्विका तिथि \ Priority Date                                                   | : 09/01/2015                                                          |
| परीक्षण हेतु अनुरोध दाखिल करने की तिथि \ Filing date of Request for examination | : 29/10/2015                                                          |
| शीर्षक \ Title                                                                  | : ALTERNATE DRYING MECHANISM AND WATER EXTRACTION IN WASHING MACHINES |
| दावों की संख्या \ Number of claims                                              | : 06                                                                  |

उपर्युक्त पेटेंट के अनुदान का प्रकाशन अधिनियम की धारा 43 के तहत पेटेंट कार्यालय के आधिकारिक जर्नल में किया जाएगा।

The grant of above mentioned patent will be published in the Official Journal of the patent Office under section 43 of the Act.

पेटेंट अधिनियम 1970 यथा संशोधित पेटेंट (संशोधन) नियम, 2005/ पेटेंट नियम, 2003 यथा संशोधित पेटेंट (संशोधन) नियम, 2016 की धारा 142 की उप-धारा (4) के प्रावधानों के तहत उपरोक्त प्रविष्टि की तिथि से 3 माह के भीतर इस कार्यालय में नवीकरण शुल्क जमा किया जाना चाहिए।

The payment of renewal fee is required to be made at this office within three(3) months from the aforesaid date of recording according to the proviso in sub-section(4) of Section 142 of The Patents Act,1970, as amended by The Patents (Amendment) Act, 2005 / The Patents Rules, 2003 as amended by The Patents (Amendment) Rules, 2016.

Bommineni Ramamuni  
(नियंत्रक पेटेंट)  
Controller of Patents

टिप्पणी / Note :

1. संशोधित नवीकरण शुल्क हेतु कृपया महानियंत्रक पेटेंट, अभिकल्प एवं व्यापार चिह्न की आधिकारिक वेबसाइट [www.ipindia.gov.in](http://www.ipindia.gov.in) पर उपलब्ध पेटेंट (संशोधन) नियम 2016 की प्रथम अनुसूची (शुल्क) देखें।

For revised renewal fees kindly refer to the First Schedule (fees) of The Patents (Amendment) Rules 2016 available on the official website of Controller General of Patents, Designs and Trade Marks [www.ipindia.gov.in](http://www.ipindia.gov.in)

2. कार्यालय द्वारा पेटेंट प्रमाणपत्र की कोई भी कागजी प्रति अलग से जारी नहीं की जाएगी।

No hard copy of Patent Certificate shall be issued separately by the office.

**We Claim:**

1. An arrangement in washing machines for removing moisture from clothes, comprising:
  - 5 a means for bringing the absorbent polymer such as superabsorbent polymers or superporous hydrogels;
  - a means for storing polymer laden cloth;
  - a means for dispensing the polymer laden cloth into the drum containing the wet clothes;
  - 10 a means for ensuring adequate contact between wet clothes and polymer laden cloth;
  - a means for supplementing the moisture removal through polymer absorption by passing hot air, condensing moisture from the air and re-circulating it.
2. The washing machine according to claim 1, wherein the polymer laden cloth acts as a  
15 mode of deployment for the absorbent chemical.
3. The washing machine according to claim 1, wherein the absorbent polymers are embedded in a matrix of cotton and wrapping it in a non-woven hydrophilic fabric.
4. The washing machine according to claim 1, wherein extracting the moisture from the polymer laden cloth by subjecting it to either temperature or pH changes or electrical  
20 fields.
5. The washing machine according to claim 1, wherein removing moisture from clothes by the passage of hot air through the clothes drum which vaporizes the moisture and in turn carried by the air outside the drum.
6. The washing machine according to claim 1, wherein when the clothes dried, the  
25 chemicals are separated and can be reused for subsequent wash cycles.
7. The washing machine according to claim 1, wherein the chemicals become saturated after some wash cycles, which are put in a recovery chamber where the water is extracted from the chemical, after which it is fit to be used again.
8. The washing machine according to claim 1, wherein the arrangement eliminates the  
30 need of a high speed motor, thereby reduces noise, vibration and the energy consumption of the drying cycle.

9. The washing machine according to claim 1, wherein the absorbent polymers remove the loosely held water in bulk and hence decreases the drying time significantly.
10. The washing machine according to claim 1, wherein the rest of the water removed by a combination of chemical absorption and heat evaporation.

5

Dated at Chennai this October 13, 2015

10

Signature: 

15

D. Moses Jeyakaran  
Advocate & Patent Agent  
IN/PA — 369

20

25

30

35

40

## **ABSTRACT**

The present invention relates to the uses of absorbent chemicals to remove moisture from washed clothes in washing machines. The proposed invention uses absorbent polymers such as super absorbent polymers (SAP) or superporous hydrogels (SPH) to extract moisture from the clothes. These absorbent polymers are with very high affinity for water, to absorb moisture from the clothes, with the possibility of supplementing the absorption process by passing hot air. This significantly reduces the energy consumed, time taken to dry clothes, and damage to clothes.

10