

GOVERNMENT OF INDIA : THE PATENT OFFICE, 214, LOWER CIRCULAR ROAD, CALCUTTA-17.
Specification No. 109310, Application No. 109310, dated 15th February 1967. Complete Specification left on 25th October 1967. (Application accepted 12th August 1968.)

Index at acceptance—144D[XII(3)].

IMPROVEMENT IN OR RELATING TO PAINT REMOVING JELLY.

PROVISIONAL SPECIFICATION.

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH, RAFT MARG, NEW DELHI-1, INDIA, AN INDIAN REGISTERED BODY INCORPORATED UNDER THE REGISTRATION OF SOCIETIES ACT (ACT XXI OF 1860).

This is an invention by KUMMATTITHIDAL SANTHANAM RAJAGOPALAN, Scientist Central Electrochemical Research Institute, Karaikudi-3, Madras State, India and CHAKRAVARTHI RAJAGOPAL, Junior Scientific Assistant Central Electrochemical Research Institute, Karaikudi-3, Madras State, India, both Indian nationals.

The following specification describes the nature of this invention.

This invention relates to improvements in or relating to Paint Removing Jelly.

It is agreed by most Corrosion Engineers that old paint and rust have to be removed before repainting of exposed structures. Rust and scale removing jellies which are usually based on acidic constituents can dislodge old paint and thorough removal of rust cannot take place unless old paint is also removed.

The characteristic of a paint removing jelly are (1) it does not run off surface on application, (2) the active substance remains in contact with the metal surface for the period required to remove paint, (3) the jelly does not attack the steel while the paint is removed, and (4) the jelly can be washed off the surface with water before painting. To get the above characteristics, one or more substances which cause softening and removal of paint and one or more thickening agents or carriers which retain the active substances are mixed together with or without a wetting agent. The jelly thus obtained is brushed on the surface of the painted structure, washed off after a sufficiently long period, which varies with the type of paint removing jelly employed. References are made to the use of alkalis and organic solvents as suitable media for removal of paint. The use of organic solvents in such solvents, which give satisfactory

paint removal are inflammable and constitute a hazard in use on outdoor structures. Further, some of the materials mentioned in literature (e.g., butyl cellosolve) have to be imported. The use of alkali in the form of an aqueous solution is open to the objection that it will not stay on the surface on which it is applied long enough to remove the paint and becomes dry soon after its application. The object of the present invention is to formulate a paint removing jelly which can be made from indigenously available materials and which are available in plenty.

The jelly developed by us is based on cheaply available materials such as plant carbohydrate and plant proteins and a cheap alkali produced in large quantities in this country together with a very small amount of a commonly used fungicide. This jelly is found to satisfy the following requirements:

- (1) The materials employed are abundantly available in this country,
- (2) They are of reasonably low cost and
- (3) satisfactory performance as defined under characteristics.

The formulations of descaling jellies prepared by us are illustrated below:

TABLE 1

Some typical formulations of the descaling jelly

Type of plant Carbohydrate	Quantity of plant Carbohydrate and Plant Protein	Quantity of alkali gms	Quantity of water ccs	Total cost	Area covered sq dm.
(a)	11 grams	20	100	18 paise	50
(b)	10 "	20	100	16 paise	50
(c)	13 "	20	100	20 paise	60

The performance of paint removing jelly developed by us is shown below in comparison with a well-known and very effective remover of paint, namely 20% sodium hydroxide solution.

TABLE 2

Performance of paint removing jelly

Description of test	NaOH	Jelly
(a) Removal of paint from uniformly painted specimens:		
Painted steel brushed with paint remover, left for 15 minutes and washed in flowing water.	Not completely removed	Completely removed
(b) Presence of paint remover on metal surface:		
Painted steel brushed and left for 15 minutes and examined for presence of paint remover.	Flows away	Remains intact on the surface

(1) The jelly developed by us can be prepared entirely from the indigenously available materials.

(2) The materials employed in making the jelly are cheaper than those employed for jellies reported in literature.

(3) The jelly developed by us can bring about efficient removal of paint when brushed on moving and stationary painted structures.

(4) The jelly developed by us can bring about an efficient removal of air drying paints.

R. BHASKAR PAI,
Patents Officer,

COUNCIL OF SCIENTIFIC & INDUSTRIAL RESEARCH.

Dated this 7th day of February 1967.

Price : TWO RUPEES.

COMPLETE SPECIFICATION.

COUNCIL OF SCIENTIFIC AND INDUSTRIAL RESEARCH, RAJ MARG, NEW DELHI-1, INDIA, AN INDIAN REGISTERED BODY INCORPORATED UNDER THE REGISTRATION OF SOCIETIES ACT (ACT XXI OF 1860).

The following specification particularly describes and ascertains the nature of this invention and the manner in which it is to be performed.

This is an invention by KUMMATTITHIDAL SANTHANAM RAJAGOPALAN, Scientist, and CHAKRAVARTHI RAJAGOPAL, Junior Scientific Assistant, both of the Central Electrochemical Research Institute, Karaikudi-3, Madras State, India, both Indian Citizens.

This invention relates to improvement in or relating to Paint Removing Jelly.

Old paint has to be removed before repainting is done. References are made to the use of alkalies and organic solvents as suitable media for removal of paint. These can only be used inside workshops and other places where facilities are provided for large-scale handling of such inflammable solvents and toxic chemicals. Hence in the case of erected steel structures such as bridges, sheds, warehouse, pillars etc., the removal of paint is done by mechanical means such as hand cleaning, flame cleaning and blast cleaning.

The use of organic solvents for removal of old paint from out-door steel structures is open to the objection that it constitutes a hazard on account of its inflammability and toxic effect. The use of alkali solution is open to the objection that it would drain from the surface readily and adequate quantity may not be maintained on the surface. The use of mechanical methods such as hand cleaning is open to the objection that removal of paint will not be complete and requires the engagement of a big labour force. Flame and blast cleaning are open to the objection that these require special equipment.

The object of the present invention is to formulate a paint removing jelly which can be applied by brush to out-door steel structures and is efficient in the removal of old paint.

A jelly with the consistency of a brushable paint which has the property of complete removal of old paints from erected steel structures can be produced

by mixing the requisite quantity of a suitable flour e.g., root flour, with 20% NaOH solution.

Old paint can be removed from steel structures out-doors for the purpose of repainting by brushing the surface of the steel structure with the jelly mentioned above. After the required time the jelly can be washed off from the surface by a jet of water or by wiping with a wet brush. This procedure is very much simpler than the procedures so far employed for such purpose.

According to the present invention, the paint-removing jelly comprises (i) a cheaply available plant product such as ground-nut flour, root flour, maize flour; (ii) a cheap alkali such as sodium hydroxide; (iii) a fungicide such as naphthol, nitro phenol and (iv) water.

The ingredients may be used in the following proportions by weight:

Plant product	10-15%
Alkali	20-30%
Fungicide	0.5-1%

The composition is prepared by dissolving alkali in water, adding the plant product and fungicide and mixing well.

When the jelly is applied to steel carrying old paint the paint is dislodged from the surface within a short time e.g., ten minutes to sixty minutes depending upon the nature and thickness of paint.

The formulations of descaling jellies prepared by us are illustrated below:

TABLE 1

Some typical formulations of the paint removing jelly

Type of plant flour	Quantity of flour	Quantity of alkali gms	Quantity of water ccs	Total cost	Area covered sq cm.
(a) groundnut flour	11 grams	20	100	18 paise	50
(b) root flour	10 "	20	100	16 paise	50

The performance of paint removing jelly developed by us is shown below in comparison with a well-

known and very effective remover of paint, namely 20% sodium hydroxide solution.

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A few typical Examples:

Dissolve 20 grams of caustic soda in 100 ccs. of water and then add 10 grams of root flour and 0.5 grams of para nitrophenol. Mix thoroughly. A jelly with the consistency of brushable paint will be obtained. Now take a steel specimen painted with red oxide in linseed oil paint and brush, this jelly on the painted surface. After ten minutes, wash the painted

steel with a jet of water while scrubbing with a bristle brush. The steel will be made free of the paint.

The main advantages of the invention:

This eliminates the use of costly equipment for removal of old paint from erected steel structures. The materials used in the formulation of jelly are abundantly available in the country. The cost of removal of old paint by this jelly is only 16 to 18 paise per 50 sq. dm.

We claim :

1. A paint-removing jelly composition which comprises (i) a cheaply available plant product such as ground-nut flour, root flour, maize flour; (ii) a cheap alkali such as sodium hydroxide; (iii) a fungicide such as naphthol, nitrophenol and (iv) water.

2. A process for preparing a composition as claimed in Claim 1 or 2 which consists in dissolving the alkali in water, adding the plant product and fungicide and mixing well.

3. A paint-removing jelly composition substantially as hereinbefore described.

R. BHASKAR PAI,

Patents Officer,

COUNCIL OF SCIENTIFIC & INDUSTRIAL
RESEARCH.

Dated this 3rd day of October 1967.