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## JOURNAL OF INDIAN LEATHER TECHNOLOGISTS' ASSOCIATION (JILTA)

Indian Leather Technologists' Association is a premier organisation of its kind in India was established in 1950 by Late Prof. B.M.Das. It is a Member Society of International Union of Leather Technologists & Chemists Societies (IULTCS).

The Journal of Indian Leather Technologists' Association (JILTA) is a monthly publication which encapsulates latest state of the art in processing technology of leather and its products, commerce and economics, research & development, news & views of the industry etc. It reaches to the Leather / Footwear Technologists and the decision makers all over the country and overseas.

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# Economic Booster for Industry - A Welcome Move



Finance Minister Nirmala Sitharaman has announced several fiscal measures on September 20 to boost the economy. The move follows GDP growth touching a six-year low of five percent in the April-June period of FY20. The FM announced a cut in the corporate tax rate for domestic companies and new domestic manufacturing companies.

The immediate impact sent the benchmark Sensex up more than 1,200 points and the Nifty above the psychological 11,000 mark. Among sectors, the Bank Nifty and Auto index surged three percent each. Therefore, the euphoria of the booster is explicit.

The key takeaways of the economic booster are :-

- Corporate tax rate cut for domestic companies and new domestic manufacturing companies
- The tax rate will be 22 percent without exemptions.
- Effective corporate tax rate after surcharge to be 25.17 percent.
- To attract investment in manufacturing, local companies incorporated after October will pay tax at the rate of 15 percent.
- Effective tax for new companies shall be 17.01 percent, including cess and surcharge.
- Companies enjoying tax holidays can avail concessional rates after the exemption period.
- Minimum alternate tax (MAT) reduced to 15 percent from 18.5 percent for companies continuing to avail exemptions and incentives.
- Enhanced surcharge to not apply to capital gains by foreign portfolio investors (FPIs).

• Buyback tax on listed companies that had announced buybacks before July 5 exempted from taxation.

• Revenue foregone for reduction on corporate tax and other measures pegged at Rs 1.45 lakh crore per year.

Finance minister had also signalled that the government may extend the lower corporate tax rate of 25% to all companies, giving India Inc something to cheer about. Her July 5 budget had lowered the rate for most companies but excluded the biggest. "We brought it down in order that now 99.3% of all industries are covered by the 25% rate," Sitharaman said in her reply to the discussion on the appropriation and finance bills in the Rajya Sabha. "Therefore, hardly any are left behind. FM had said the government's tax proposals are aimed at redistribution of wealth to bring about more equitable development. In her budget speech, she had proposed to cut corporate tax rate to 25% from 30% for companies with annual turnover of up to Rs 400 crore. "So far as corporate tax is concerned, we continue with phased reduction in rates," she had said. "Currently, the lower rate of 25% is only applicable to companies having annual turnover up to Rs 250 crore. I propose to widen this to include all companies having annual turnover up to Rs 400 crore." That left 0.7% of companies excluded from the lower rate, she had said.

It is noteworthy in the perspective that India buys around 80% of its oil overseas, the single-largest component of our import bill. Between 2015 and 2018, the present administration was lucky as global crude prices remained within \$30-50 per barrel range, as the US stopped importing oil and Iranian crude came to market after decades.

Suddenly, things have changed. West Asia, ever volatile, is boiling. Half of Saudi Arabia's oil production capacity has been bombed out. Riyadh blames Iran-backed Yemenis for the attack. US President Donald Trump, recently attempting to soften his own, earlier hard-line on Iran, might reverse-tweet into muscle-flexing mode. Oil is above \$65 per barrel. The global economy



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is slowing which is more dangerous than a sudden slump. Because it goes unnoticed by most of all. The World Bank says 2019 will close with planetary growth at 2.6%. Its own data shows this will be the slowest overall expansion in seven years. India has to pull itself up by its bootstraps.

So, as our financial policymakers gather in Goa, they have to figure what's the single-most effective way of boosting domestic trade, commerce, transport, manufacturing and investment. The answer, of course, is to overhaul the GST totally. Scrap five rates in favour of two, at, say, 3% for stuff like healthcare, social services, processed food and so on. For everything else, have a single rate of, maybe, 15%. Scrap all cesses and preferential duties. Bring booze, fuel, electricity, bangles, kajal, alta, khadi, raw silk, rockets, space payload, locally

made aircraft components under GST at the lower or higher rate. The pan-India average tax on petrol, reckoned in July, was 105%, on diesel about the same. Who would mind these rates being slashed to 15%? Will anybody notice a 3% hike in the price of a bindi? No, the commoners have got the habit to get sustained every day.

So, we need a shining India with space of livelihood with freedom at one's own domain of income and expenditure.

*Goutam Mukherjee*

Dr. Goutam Mukherjee  
Hony. Editor, JILTA

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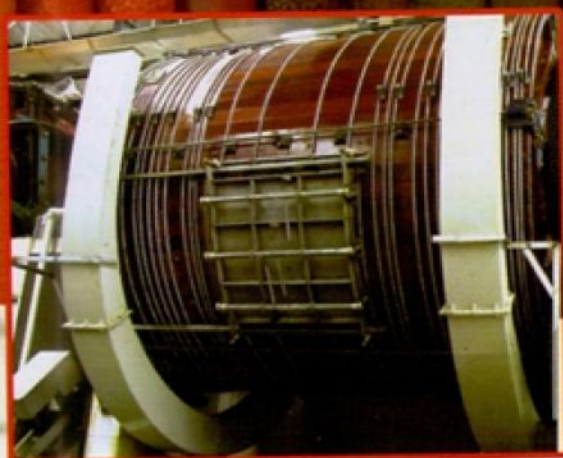
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by Research*

## *From the desk of* **General Secretary**



### **61<sup>st</sup> Annual General Meeting**

Above will be held at 03.00 PM on Thursday the 31<sup>st</sup> October, 2019 at the Auditorium of Indian Science Congress Association, 14, Dr. Biresh Guha Street, Kolkata – 700 017 as per the agenda given below :-

1. To confirm the Proceedings of 60<sup>th</sup> Annual General Meeting held on 29<sup>th</sup> September 2018.
2. To consider and adopt the audited Balance Sheet and Statement of Accounts for the Financial Year ending 31<sup>st</sup> March 2019.
3. To consider and adopt the Annual Report of the General Secretary on behalf of the Executive Committee.

4. Formal Announcement of the Result of the Election for reconstitution of the Executive Committee for the term 2019 – 2021.
5. To appoint Auditor in place of M/s Ray & Ray who are retiring but are eligible for reappointment on mutually accepted rate.

AGM notice has been posted on 10<sup>th</sup> October' 2019. Maximum participation is requested.

### **LEXPO Siliguri – XXVI**

We have already applied to the competent authority for allocation of Kanchanjungha Krirangan adjacent ground for organizing the next i.e. the 26<sup>th</sup> LEXPO at Siliguri for 16 days from 21<sup>st</sup> December 2019 to 5<sup>th</sup> January' 2020. Letter from the competent authority allocating the land to us is likely to be received in mid November' 2019.

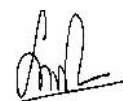
### BEREAVEMENT

With profound grief and a heavy heart we announce the sad demise of Shri Dilip Chakraborty, an active life member of our Association on 13<sup>th</sup> September, 2019.

May his soul rest in peace and May God give strength to the members of the bereaved family to bear the irreparable loss.

You are requested to :-

- a) Kindly inform us your 'E-Mail ID', 'Mobile No', 'Land Line No', through E-Mail ID: [admin@iltaonleather.org](mailto:admin@iltaonleather.org) or over Telephone Nos. : 24413429 / 3459. This will help us to communicate you directly without help of any outsiders like Postal Department / Courier etc.
- b) Kindly mention your Membership No. (If any) against your each and every communication, so that we can locate you easily in our record.



**(Susanta Mallick)**  
General Secretary

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JILTA

Executive Committee Members meet  
every Thursday at 18-30 hrs. at ILTA Office.  
Members willing to participate are most welcome.



# USE OF PIEZOELECTRIC CONCEPT FOR HEATING AND CHARGING SYSTEM IN SHOES

<sup>1</sup>Manu Shukla, Laxmi Kant Tyagi, Brajesh Kumar Singh, Yashank Srivastava, <sup>2</sup>Arjun Verma, <sup>3</sup>D. K. Chaturvedi

<sup>1</sup>B. Tech. (Footwear Technology) Students, <sup>2</sup>Guest Faculty, Dept. of Footwear Technology & <sup>3</sup>Professor and Head, Dept. of Footwear Technology & Faculty of Engineering Dayalbagh Educational Institute, Dayalbagh, Agra



## Abstract

This concept is basically designed to overcome the problems at high-altitude remote areas where the temperature is too low and there is no sufficient electricity. In such cases our soldiers face many difficulties while deployed at such high-altitude areas. So, they have to face a challenge to remain active in such areas and to protect the nation from outer disturbing elements and enemies. To solve this problem, we have designed a thermal sock with piezoelectric charging for our brave soldiers and after wearing this they will serve the nation in a very enthusiastic way.

**Key Words-** Insole, Mid-sole, EVA sheets, Socks, Piezoelectric plate, Quartz, Sensors, Socks lining

## Introduction

Human feet have limited metabolism compare to other body parts. At such high altitude, we need some special cold weather kits or gears to protect ourselves. During the past years, some specialised clothing, sleeping kits, various equipments like snow goggles, heating insoles, and special types of Boots have been dominating. But with the advancement of technology, this model overcomes the problems at such low extremities. While patrolling, we can generate the electricity by pressing the piezoelectric plates. In this way, we can store the energy and that energy is used for charging the battery. As a result, a proper amount of heat is generated within the socks. These thermal socks have been designed to provide you warmth anywhere, anytime and also it promotes the healthy blood circulation

throughout at low extremities. So, in this way there will be no casualties during Patrolling. Sometimes temperature reaches up to -50°C. So, at this temperature, our soldier suffers a lot of pain and sometimes very Havoc situation may also arise. The unique heating system is based on the macromolecular compounds of fibre materials that are extremely efficient in generating heat from a low voltage source. These macromolecular compounds of fibre materials are sewn into the socks to provide warm to feet up to 2-3 hour per charge. The temperature can reach up to 30°C. When it becomes prominent, it will totally eradicate the use of equipment's, heaters, and all the other stuffs in our daily life.

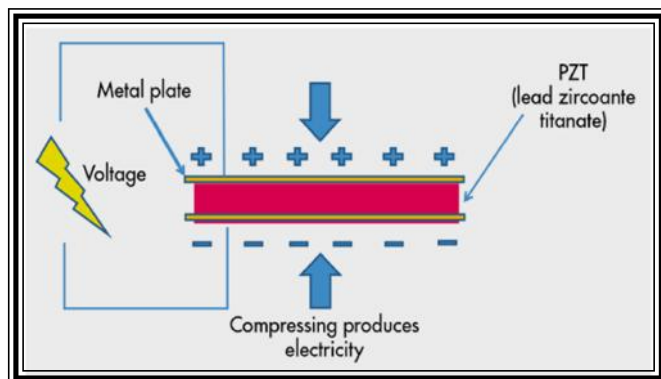
## Piezoelectric effect

It is the ability of specific materials to produce an electric charge by applying the mechanical stress. This direct piezoelectric effect means that the material has the tendency to convert mechanical stress into electric charge. The piezoelectric crystals exhibit the piezoelectric effect. The most common piezoelectric material is Quartz. Besides that, certain ceramics, Rochelle salts, and other solids also produce this effect.[1]

## Working

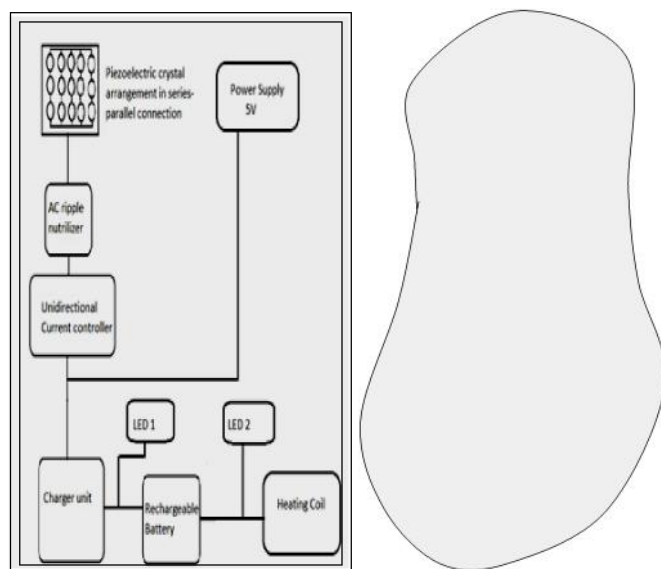
When we compress the piezoelectric material, it produces electricity. This piezo crystal is in-between the two metal plates as shown in figure 1 produces a voltage potential across the material. The metal plates store the charges results in producing voltage that is called piezoelectricity. The piezoelectric device

connected in series-parallel connection to enhance voltage and current. So, this arrangement of suitable voltage and current as shown in figure 2 acts like a miniature battery results in generating the heat around the socks.



**Fig.1** Concept of piezoelectricity [1]

### Block diagram of the proposed model



**Fig.2** Block diagram of proposed system for Heating and charging system in socks

### Design requirements of thermal socks for cold environments

At the time of designing the socks suitable for cold weather, there are so many factors that need to be considered. Mainly these factors are mobility, protection against the cold, insulation, waterproofing to keep the feet dry, durability, permeability, and weight.

For temperatures above +5°C, there is no specific footwear insulation is required. Enough heat to keep the feet warm at temperatures down to +5°C if the wearer is active. The temperature range between +5 and -10°C is the most complex to deal with, due to change in weather. At temperatures below -10°C there is less external moisture available to pierce into the footwear. In such conditions, it is important to have a good level of insulation in the footwear.[2]

### Measuring insulation

A thermal model having surface temperature ( $T_s$ ) at a constant ambient temperature ( $T_a$ ). the power to the model in a stable environment is equal to heat losses through the footwear knowing the area(A) of the model, its different zones (toes, heel etc.) and measuring power(P), the temperature gradient allows the calculation of total insulation ( $I_T$ ) of whole footwear by this equation [3] :

$$I_T = (T_s - T_a) \times A / P \quad (1)$$

### Materials

Socks, EVA sheets, Black Lining, Heating tube, Connectors, Mid-sole, Sensors, Battery, Piezoelectric plates, led bulb, Switch

### Applications of Thermal Socks

#### Useful for persons at high altitude

At high altitude, temperature goes down to -50°C and 10% oxygen level, which creates so many difficulties. Although, the weather at high altitude allows and attracts mountaineers to climb the peak. With such high altitude, lots of physical problems and several health issues like weight loss, memory loss, and sleeping disorder become a usual problem for them. Our brave soldiers ready to devote their lives for the protection of the country at such high altitude. Siachen is the highest battleground in the world and in unfavourable conditions, it is the most painful task but our soldiers do it with all enthusiasm and zeal.[4]

Besides that, it is also useful for proper blood circulation, for Bird watchers, for Patrolling, for Mountain Climbing, for



Travellers, for Golfers, for Bikers, for snow boarders, and for Senior Citizens.

### Advantages

- Ñ Cheaper in cost
- Ñ Easy to use
- Ñ Simple maintenance
- Ñ Perfect solution for soldiers to work at low extremities
- Ñ Battery is automatically charged during walking or running

### Conclusion

This concept helps to solve the problems of soldiers at high altitude areas. By this, they perform difficult task in a very effective way. The uniqueness is that, it is inserted in any type of shoes without any discomfort. As the cost of these socks is low, so it will reach to everyone without any difficulty.

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JILTA



Late Dilip Chakraborty

(13<sup>th</sup> February, 1951 – 13<sup>th</sup> August, 2019)

Born on 13<sup>th</sup> February, 1951 at Nabagram, Dist – Hooghly, Late Dilip Chakraborty was a bright student from his childhood and passed out the 10th & 12th exams with distinction from Nabagram Vidyapith, Hooghly. He qualified for both Medical & Engineering and opted for engineering.

He passed leather technology examination from R. C. C. College, Beliaghata and joined a private organization, where he worked for a few years, . During his tenure in that organization he cleared UPSC exam. and joined Ministry of Medium and Small Scale Enterprises (MSME) and served the Govt. till his retirement . He was a very good chess & card player. Watching sports and debate shows were his passion. He was an amicable personality to his surrounding people.

A life member of Indian Leather Technologists' Association, late Chakraborty left behind his wife, a son and a daughter.

May his departed soul rest in peace.

—





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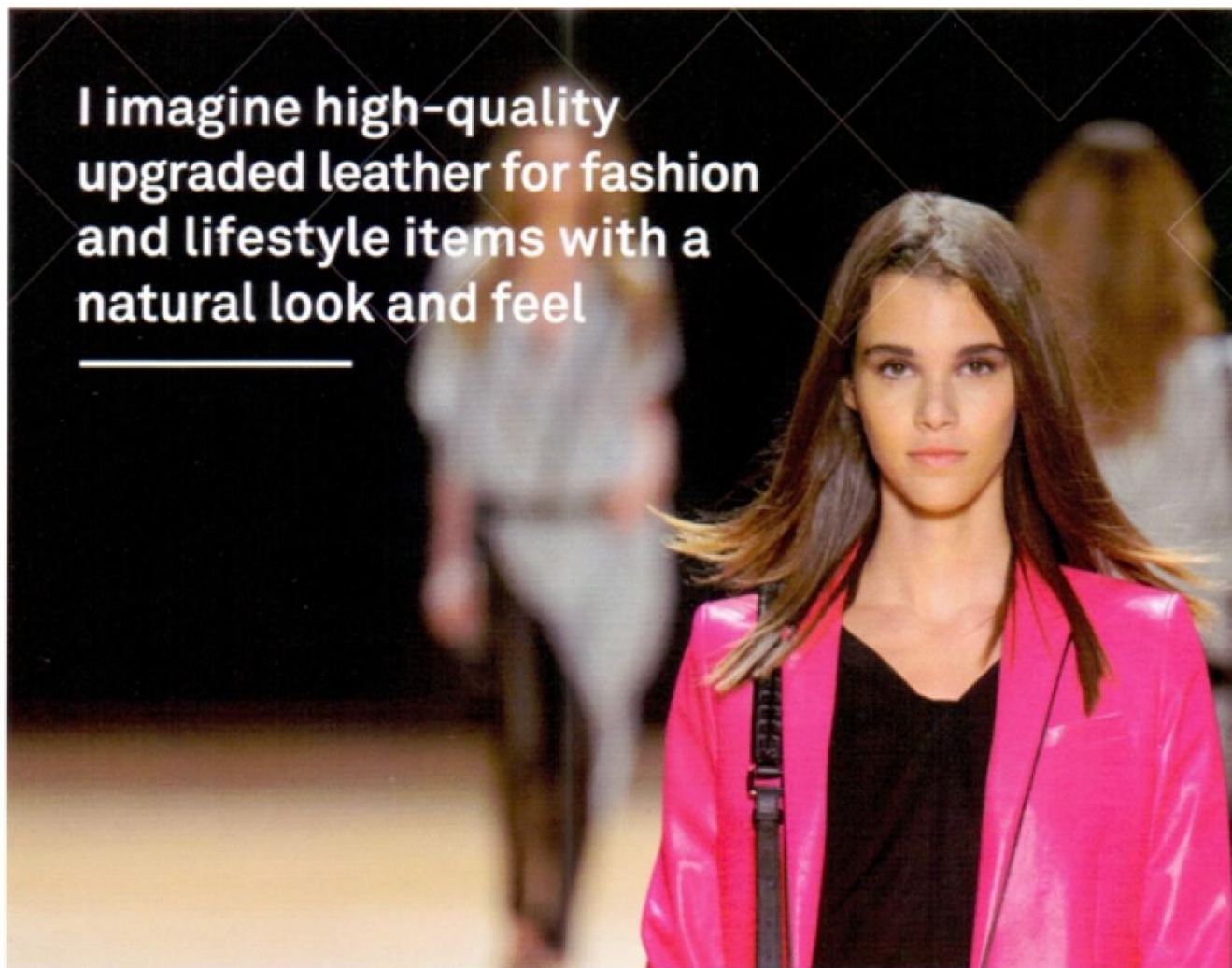
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## EXPORTS OF PRODUCTS EARLIER UNDER GSP TO US UP 32 PC



Citing data from the United States International Trade Commission (USITC), the Trade Promotion Council of India (TPCI) on Sunday said India's exports to the US of products which were previously under that country's GSP preferential tariff system registered a 32 per cent year-on-year growth in June 2019.

TPCI in a statement said that imports by the US from India in June 2019, of products previously under the Generalized System of Preferences (GSP) was \$657.42 million, compared to \$495.67 million in June 2018, reflecting a Y-o-Y growth of \$161.74 million. Commenting on the development, TPCI Chairman Mohit Singla said: "This is a clear indication that Indian products have the full potential to compete globally and not solely dependent on support. TPCI is a strong advocate of the phasing of subsidies and reducing government support."

"The need is incentivizing new sunrise sectors like furniture and electrical, by creating a cluster-based mega ecosystem, which can churn export growth completely. The era of continuing fixation of labour incentive sectors should be over, as their growths have already flattened, despite sustained support," he said.

The major products which have shown increase in US imports are plastics, rubber, aluminium, machines and equipment, transport equipment, hides and leather, pearls and precious stones, among others, the statement said.

The share of GSP-benefited products in total exports from India to America was 12 per cent, which was withdrawn with effect from June 5, 2019.

(SME – 12/08/2019)

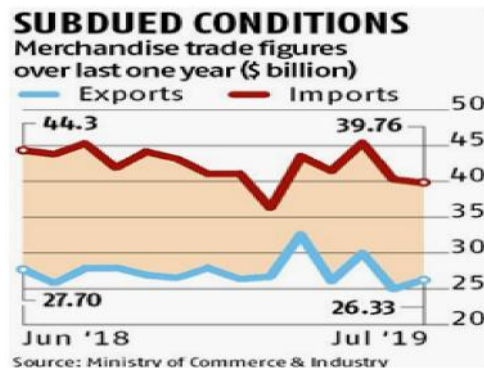
## 24<sup>th</sup> ILPA SHOW

Curtain was raised for a snap shot of the annual signature event of Indian Leather Products Association titled "The Upcoming ILPA Show 2019 – Leather on the Ram" on 20<sup>th</sup> September'2019 at Gucci, Hyat Regency, Kolkata.



Mr. Susanta Mallick, General Secretary, Indian Leather Technologists' Association shared the Dias with other dignitaries from CLE, CLCTA and other associations / organizations and concerned Govt. bodies. ILTA is also working in several projects undertaken by ILPA

## EXPORTS POST MARGINAL RECOVERY IN JULY



Merchandise exports recovered a bit to post a growth of 2.2 per cent in July, compared to a huge contraction of 9.7 per cent in the previous month even as the outbound shipments of high foreign exchange earners such as refinery products, engineering goods and gems and jewellery fell.

Reflecting subdued economic conditions back home, imports continued to decline. In fact, the inbound shipments dropped at a faster rate of 10.43 per cent in July against 9.06 per cent in the previous month, official data released on Wednesday showed. Part of it is due to a 22 per cent decrease in imports of petroleum due to softening of prices and 42 per cent fall in those of gold.

(Business Standard – 15/08/2019)

## LEATHER INDUSTRY FEARS SUPPLY CRUNCH WITH EXPORT DUTY CUT ON RAW HIDE



The domestic leather industry has rued the proposal to impose a sharp export duty cut on raw leather and hide from 60 per cent to 40 per cent in the Union Budget 2019 tabled in Parliament last week. Fifteen per cent export duty on EI (Eastern India) tanned leather was also abolished on July 5. At present, the share of these items is not big in the leather export basket, but an increase in their export after budget incentives is expected to create a supply crunch.

Industry players, including leather goods manufacturers and tanneries, are apprehensive the cut proposal would create acute raw material squeeze in the domestic market and ultimately lead to uncompetitive pricing of Indian finished products in the global arena.

Currently, the share of raw hide and leather skin in India's net leather and leather goods exports, which stood at more than \$5.3 billion in 2018-19, is almost negligible due to higher export duty and robust domestic demand. However, leather industry is apprehensive the incentive to raw hide shipments would benefit organised slaughterhouses, but in turn hit leather sector by narrowing down the supply pool.

Council for Leather Exports (CLE) Northern Region chairman and leading Agra-based leather footwear exporter, Puran Dawar, said the export duty cut on hide would adversely affect the leather value chain right from tanning to finished goods, especially at a time when finished leather exports were already down.

"If leather goods industry does not get raw material, how will it survive and proliferate. Every country preserves its raw material resources, especially in sectors, which are competitive, organised and growing, such as leather in India. Yet, the finance ministry has proposed the export duty cut on hide, which defies logic," he told Business Standard. The Budget has also proposed to abolish 15% export duty on EI (Eastern India) tanned leather. EI leather is vegetable tanned leather produced by tanneries in some Tamil Nadu regions. In 2008, EI leather was also accorded intellectual property protection under the Geographical Indication (GI) Act. It is exported to some European countries, such as Italy for making shoe upper after processing.

"There is even the possibility of duty free export of finished leather from India under the garb of EI leather, which would further narrow down raw material availability," he warned. Dawar claimed some slaughter houses, especially based in South India, had long been pursuing the agenda of export duty cut on hide and EI leather, although industry in general had been rallying against it and even apprised the commerce ministry of its stance.

Meanwhile, CLE is slated to hold a meeting tomorrow to discuss the issue and request the Centre for rolling back the export duty cut in the larger interests of leather industry.

CLE Central Region chairman Javed Iqbal noted the export duty had been kept higher at 60% to discourage hide exports and ensure ready supply of raw material to industry. "The export duty cut is bad for all stakeholders in the leather value chain, including customers. Of late, there has actually been shortage of raw hide domestically and if the Budget proposals are passed, it would further create shortage and pull down production index," he claimed. According to Small Tanners' Association member Nayyar Jamal, the export duty cut would also cast a death knell for tanneries as raw hide was their prime raw material.

"At a time, when our biggest competitor Bangladesh does not allow raw hide shipments and instead provides 20% export duty drawback on finished leather goods, India has proposed to promote hide exports and create a shortage for domestic industry," he lamented.

He claimed Kanpur leather cluster would be the hardest hit by the Budget proposals. The nearly Rs 12,000 crore Kanpur leather industry has already been facing a crisis owing to the continued closure of more than 200 leather tanneries over the past several months over environmental issues, while some units are already mulling to shift to West Bengal.

(Business Standard – 31/07/2019)





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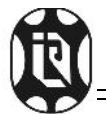


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# HOW DO A TANNER PERCEIVES A DEATH ?

Dr. Buddhadeb Chattopadhyay

Former Principal of Govt. College of Engineering & Leather Technology, Kolkata  
& Principal, MCKV Institute of Engineering, Liluah, Howrah, W. B.



There are about 50 trillion of cells, constantly dividing and also disappearing in human body. There are at least 70% of water containing large number of various ions who have definite functions to perform. The numerous chemical reactions always proceed on with a specific rate constant at 37 degree Celsius temperature and one atmospheric pressure. All these reactions follow the laws of Chemistry.

Constantly within these tiny cells the new molecules are formed at the expense of the reagent molecules. When the energy of activation of some chemical reactions are high; enzymes step in to lower the activation barrier to speed up the reaction rate reasonable enough. Sometimes some reactions use the so called “energy currency” the ATP, to make the reaction happen. These reactions are well disciplined and follows a specific sequence, which we call the metabolic cycles or biosynthesis pathways. For example, carbohydrate synthesis, metabolic pathways of glucose, metabolism of fatty acids, cholesterol and lipoprotein synthesis, lipid synthesis, amino acid metabolism, citric acid cycles etc. These not only are happening constantly, but are effectively monitored. Take for instance, if, glucose metabolism goes beyond monitoring or control, we have diabetic problems, when the control system requires external intervention.

Leaving these asides there are various transport mechanisms in both the directions; from intra cellular space to outer cellular space and vice versa. Take for example, the unique colloidal connective tissue, the blood, contains carrier hemoglobin that binds oxygen and release them to all the cells from head to feet, every where within given time and rate.

Coming to the fact that each cell contains DNA. Some of the human genomes are as long as 2.5 meters. These are opened at the ‘ori’ site and a host of enzymes like, DNA helicase, SSB protein, DNA polymerase I, II and III, topoisomerase, DNA ligase etc. are the weapons that are used by DNA for faithful replication,

monitoring, control with astonishing speed, control and accuracy in each of the 50 trillion cells. What a speed! 1,000 nucleoside per second and with average 1 error in per 100,000,000 nucleosides!

Take for instance RNA polymerase with very high accuracy detaches non coding sequences from coding sequences, called slicing and transcribes at the rate of 80 nucleosides per second very effectively in each cells. Consequent three nucleosides from 5' direction, constitute one genetic code.

Ribosomes, amino acid t-RNA synthetase and host other molecules reads the genetic codes and aligns the correct amino acid one after another to synthesize polypeptide chains with a predetermined amino acid sequences, whose information are conserved in DNA. These information are Passed on to m-RNA by the process called transcription and then these are used to produce native polypeptide chains to form proteins, stimulating hormones etc. of various kinds in various cells. The rate of this translation is about 40 amino acids per second.

So, there are miracles that are happening in every second within our bodies without our active interference or conscious control, whether working or sleeping. Sometimes one, sometimes more than one polypeptide chains are combined to form a supramolecular super structure. The kind of folds that a protein should make is not also left to the proteins itself. It is also guided by the amino acid sequence or to say ultimately the DNA. It is these unique folding that decides how the protein is expected to perform – as enzyme, or as nutrition, defense, connective tissues etc.

Take for example the tropocollagen, which is the basic protein that makes the skin, teeth, tendon, cartilage, bone etc. are triple helix in the folded manner. They form 5 x 5 pentameric matrices in such a way that one row is staggered by one quarter of the



length from the next row; very much like the rows of bricks to construct the wall. Then we need some strong binding to make the wall strong. Several covalent bonds act as cement in these constructions.

Very exciting things happen. Enzyme lysyl oxidase and hydroxy lysyl oxidase, oxidizes some of the lysines of the tropocollagen to allysine and hydroxy lysine to hydroxy allysine. They are actually semi-aldehydes. These aldehydes undergo several reactions like Schiff base condensation, Aldol condensation to bind one tropocollagen molecule to another by head-to-head or head-to-tail or tail-to-tail joining within the same row along with the same, in between the columns of the pentameric matrices. They then mature and forming adhesion of several such forms make the organs as stated above. Native collagen is white in colour. Colour of the skin develops afterwards. A 1.0 mm dia. native collagen is 10 times more strong (tensile strength) than a 1.0 mm dia. steel.

Leaving these asides, several impulses of ions of metals triggers neuro signals by which we receive any kind of sensations.

In order to sustain life, there is a grand design of the Nature that all these trillions of chemical reactions never reach equilibrium. A chemical reaction does not proceed further upon attaining equilibrium. Reaching any chemical reaction in life to equilibrium is not a sustainable solution for life-

show to go on. But as per the laws of chemistry the reaction must tend to reach equilibrium.

What is the equilibrium point of life then? Death is the only equilibrium of life by any means. At that point and beyond, there is no exchange of either energy or mass from those cells from and to the surroundings. The cell is a thermodynamically open system at constant pressure. Therefore, all the complex molecules need no binding to remain in folding pattern and of course, they then do; what they should do must. Increase entropy to lower the Gibb's Free Energy, gain freedom of movements. Collagen triple helix or proteins will start breaking down to polypeptides then oligopeptides, then di or tri peptides, indole, amino acids and finally to Nitrogen oxides, carbon dioxide, water and the mineral oxides and get randomly distributed; whether you do cremation in crematorium or not. We call them aerobic purification or anaerobic decay; as the case may be.

Hence it is indeed a joyful maximum degree of freedom of those 50 trillions of molecules because they have no binding, no more tasks to perform, no more discipline always to maintain, no more transformation from one structure to another.

Since all chemical reactions *in vivo* must tend to reach this destined equilibrium point; every second in life, we are approaching to death. This is the scientific truth that I as a tanner do believe.

### CORRIGENDUM

**DUE TO OVERSIGHT, THIS ARTICLE WAS PUBLISHED IN THE SEPTEMBER' 2019 ISSUE OF JILTA WITH THE AUTHOR AS DR. GOUTAM MUKJHERJEE, ASSOCIATE PROFESSOR, GMCLT WITH HIS PHOTOGRAPH.**

**WE DEEPLY REGRET FOR THIS UNINTENTIONAL MISTAKE.**



## Solidaridad ASIA

Solidaridad Network is a global civil society organization providing efficient, scalable and economically effective and innovative sustainability solutions in various agricultural and industrial commodities such as:



Solidaridad Asia has more than 320 sustainability experts operating from 26 offices in 9 countries and has also pioneered development and implementation of national sustainability standards in the region.

Solidaridad initiated its efforts in the leather cluster in late 2017 with the Kanpur-Unnao leather cluster. Within 2 years of inception, we have started our efforts in Kolkata and Bangladesh Leather clusters. Through tailor-made programs, Solidaridad has tried to address the following components:

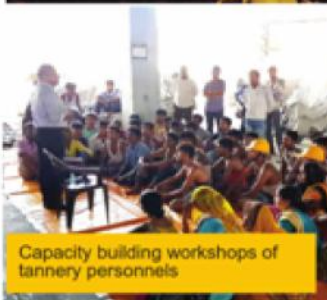
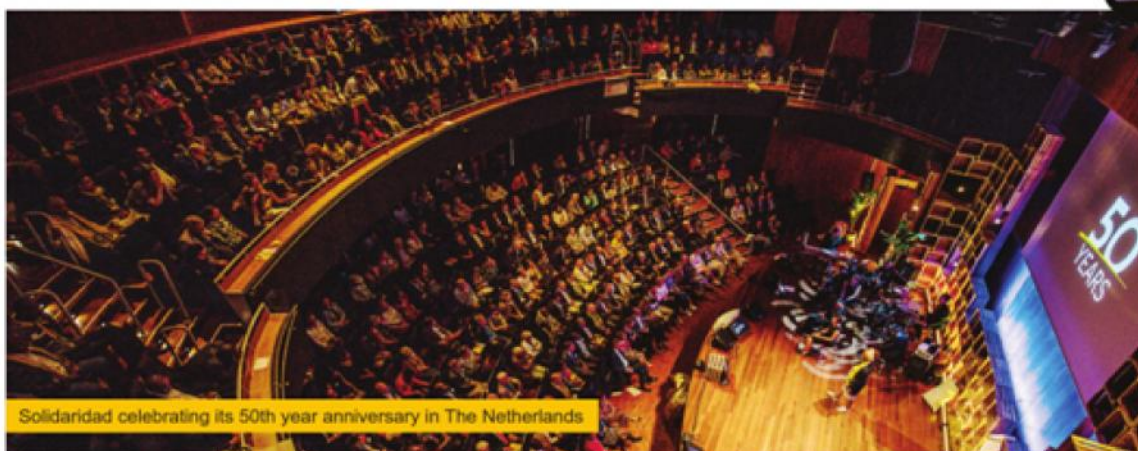
### KEY COMPONENTS



### SUSTAINABLE WAY FORWARD IN THE LEATHER CLUSTERS ACROSS INDIA



## Solidaridad ASIA



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## LEATHER SEALS FOR HYDRAULICS AND PNEUMATICS\*

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### ABSTRACT

The author points out that very little work has been done to compare various gland packing materials for use in hydraulic and pneumatic equipment. He goes on to say that the use of leather may be considered a little old-fashioned, but for many purposes it is superior to other materials. The paper considers the properties of leather with regard to resistance to heat and power fluids, its qualities when impregnated with various waxes and resins, and the effect of corrosion.

### Introduction

Accurate comparative information on the performance of any of the gland packing materials is scarce. There has been little systematic work done on the subject because, not only have the relative properties of the basic materials to be assessed, but the forms into which the materials can be fabricated have also to be compared against the service they are asked to perform. Thus information on the performance of leather as a packing compared to other materials is mainly reliant on experience. The engineering industry has considerable experience of leather for the purpose, but the knowledge lies largely in the skill of old craftsmen, and because claims are unsupported by factual data they tend to be discredited as old-fashioned. There is as yet no universal answer to the problem of preventing the escape of fluid from between two moving surfaces. Present day solutions are a compromise between possibly opposing requirements, and the selection of a packing material has to be made on a review of properties based on the imperfect present-day knowledge. This paper attempts to summarise the knowledge of the properties of leather as a packing material.

### What is Leather?

Leather has a multitude of forms with varying chemical and physical properties, and in the manufacture of packings these forms must be related to the service. Leather is a fibrous material in which the fibres are interwoven in three directions, giving it a three dimensional structure. The fibres may branch and surround other fibres to give the material flexibility coupled with a high tensile strength and resistance to abrasion. Variations in the arrangement and angle of weave of the fibre by chemical processing will alter the physical properties; for instance, a high angle of weave will give stretch and resistance to abrasion, whereas a low angle of weave will give a high tensile strength with little stretch, but will reduce the resistance to abrasion. For the manufacture of packings a leather whose fibres has a fairly high angle of weave is required. The fibres should be bold, not too finely split by prolonged liming, and orderly (Ref. 2)

\* Paper presented at the Second European Fluid Power Conference.





Variations in the origin and type of animal, as well as the location of the sample from the hide, will affect the properties of the leather.

See fig. 1 (Ref. 1).

The collagen or protein fibre may be stabilised or tanned by a variety of methods to render it serviceable, and the three main categories used for packings are summarised as follows :

**(A) Vegetable Tanned Leather :** This is often, though incorrectly, called oak tanned leather. It is widely used in water systems as it is extremely resistant to abrasion when wet. It has the lowest coefficient of friction in water or oil of the three main tannages. The tensile strength of the leather is in the order of 3,000 to 6,000 p.s.i. It is very easily fabricated, and it can be used for both rigid and soft packing. It is widely employed in sealing petrol systems, but is attacked by ketones and alcohols, hardening in use. Impregnation with waxes or resins may overcome this drawback, but the reactive tannins it contains may interfere with the polymerisation of some materials.

**(B) Chrome Leather :** The protein molecule is tanned with basic chromium sulphate, giving a leather that can withstand temperatures upto 105 deg. C. in the presence of moisture. The fibre structure is usually more dense than in vegetable tanned leather, and it is suitable for high pressure systems using oil as the medium. The tensile strength is slightly higher than for vegetable tanned leather being in the range of 4,000 to 7,000 p.s.i.

**(C) Chrome Retanned Leather :** This is a chrome leather that has received an additional treatment with a vegetable tanning agent. It has the high abrasion resistance of a vegetable tanned leather coupled with the compactness of chrome leather. It is also exceptionally resistant to heat, being able to withstand boiling water for long periods and, when dry or in the presence of oil, giving efficient service at temperatures upto 145 deg. C.

#### Resistance to Heat

The resistance of collagen to heat depends not only on the temperature but on the moisture content and chemical environment. In general, the failure or shrinkage temperature is highest at the iso-electric point and decreases as the pH is changed from this value. Tanning usually raises the shrinkage temperature, and in the case of vegetable tannins, catechol tannins resist high temperature better than pyrogallol. Retannage with a different tan also raises the shrinkage temperature. Thus, formaldehyde raises the shrinkage temperature of vegetable or chrome tanned leather and chrome retannage raises the shrinkage temperature of vegetable tanned leather. Typical values for shrinkage temperatures are given in Table 1 (Ref. 3). Most dry leathers may appear undamaged by heating to 150 deg. C. but may deteriorate rapidly during storage at lower temperatures and in normal atmospheres. Vegetable tanned leathers with a moisture content of less than 3 percent will withstand temperatures up to 140 deg. C. Chrome tanned lea-



thers in general do not withstand dry heat as well as vegetable tanned leathers, and may lose 20 per cent of their strength after 24 hr. in mineral oil at 120 deg. C. Their resistance to wet heat is, however, better. Chrome retanned with vegetable, particularly a catechol tannage, is more resistant than either. At the lower end of the temperature scale, the leather fibre remains supple to below minus 85 deg. C. However, a leather will only perform satisfactorily at low temperatures if the impregnant in the leather remains soft. Assuming a low moisture content,

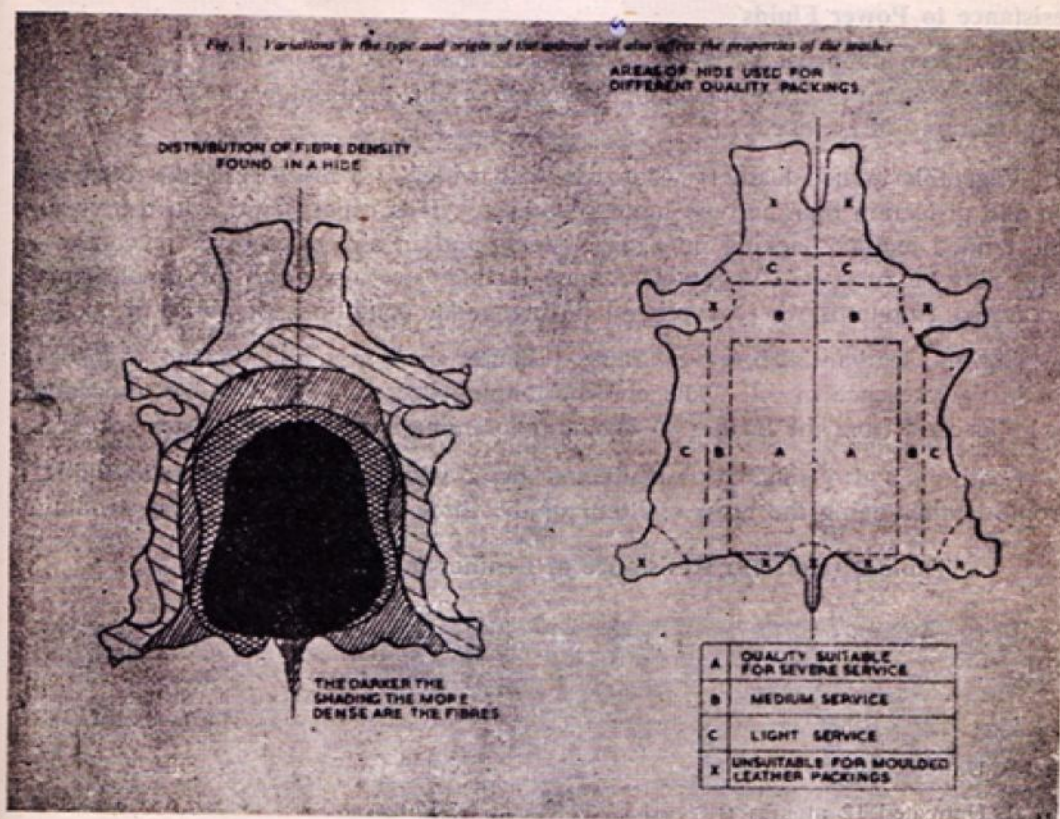


Table 1.—Typical Values for Shrinkage Temperatures

Tannage	Shrinkage Temperature deg. C. (standard test in water)
None (raw wet hide)	58 to 68
Formaldehyde	63 to 73
Vegetable	70 to 85
Semi-chrome	88 to 105
Chrome	77 to 110
Chrome retan	113 (aq. glycerine) 147 (in mineral oil).

conventional leathers remain supple at a temperature of minus 5 deg. C. to minus 10 deg. C.: below this, special greases have to be used, and for temperatures of minus 40 deg. C. to minus 90 deg. C. silicone oils are employed.





Leather has a moisture content of between 10 per cent and 15 per cent under normal conditions, but this can be reduced by heat. A diminution in area accompanies loss of moisture. A reduction in moisture content from 12 per cent to about 2 per cent will reduce the area of chrome leather by about 6 per cent and vegetable tanned leather by 4 per cent.

### Resistance to Power Fluids

The three main categories of leather described may be used for packings in air, oil or water power systems, the selection of the material being governed by the conditions of service.

Vegetable tanned leathers when wet with water, are more resistant to abrasion and distortion than chrome tanned leathers. It is usual practice to use vegetable tanned leather packing in water systems and in air systems where condensation may be present. Vegetable tanned leathers are also used for diaphragms in contractors pumps where continual flexing under conditions of abrasion occur.

Chrome leather is, however, more resistant than vegetable tanned to abrasion in the presence of oil. The chrome tanning process is irreversible and cannot be leached from the leather so that no contamination of the oil system occurs.

Leather is also singularly unaffected by a wide range of hydraulic fluids, chrome leather being the most resistant of the three types. There is no swelling

**Table 2 (Ref. 4) : Resistance of Leather to Hydraulic Fluids**

	Tensile strength (p.s.i) after 12 months' immersion	
	High chrome content leather, 4 per cent $\text{Cr}_2\text{O}_3$	Silicone impregnated leather (Fortoxsil)
Untreated newly tanned	3,460	3,840
Untreated 12 months	3,570	3,910
Lubricating oil SAE 30	4,190	4,140
Skydrol	3,550	4,150
Aeroshell fluid No. 4	4,370	3,610
Tarbo oil No. 35 (E.E.L.3)	4,630	4,040
Low temperature grease (Beacon 325)	3,930	3,950
MS200/1000 silicone oil.	4,140	4,160

of the fibre nor disorganisation of weave by any of the commercial special purpose fluids such as polymerised glycol-water mixtures, organic phosphate esters, disiloxanes, fluorocarbon and other halogenated hydrocarbons (Table 2). It must be stressed that the material of a packing consists not only of a network of leather fibres, but also a complex mixture of waxes, greases or resins that fill the spaces between the fibres. These impregnants may be seriously influenced by the hydraulic medium, and if completely leached out, may result in leakage by seep of the power fluid through the body of the packing.

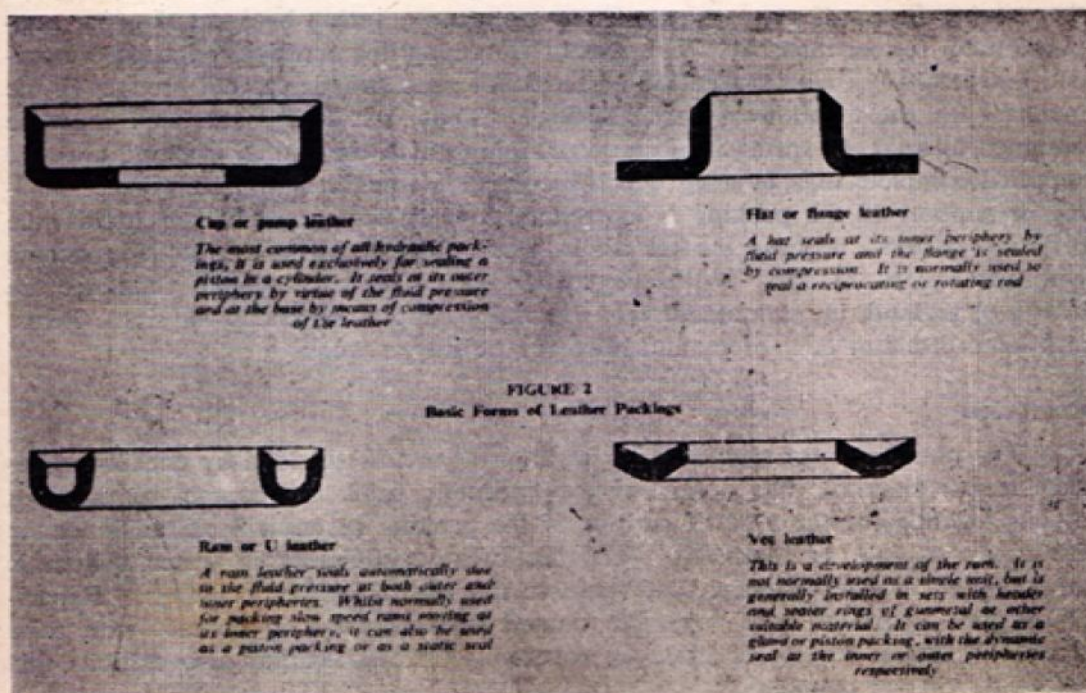


### Impregnation

The impregnation of leather with waxes or resins is a complex subject and formulations are specific to individual manufacturers. The impregnant is applied to the leather in the liquid state, and the packing formed to shape. On solidification the impregnant holds the form in the leather. The simplest of these materials is paraffin wax, which is applied hot for moulding and allowed to solidify by cooling. There is little change in volume during this process, so that it is possible to obtain nearly 100 per cent fill of the voids or interfibrillary spaces. In use much of this wax becomes leached out and replaced by lubricating or hydraulic oil. The packing is thus self-lubricating, which accounts for the smooth light action of the leather packed gland.

Alternatively, monomers of resins or synthetic rubbers may be applied to leather and condensed or polymerised *in situ*. Variation of the Conditions of application will influence the degree of impregnation and the hardness of the packing. This treatment has a marked influence on the characteristics of the packing. The resistance to abrasion of the leather is considerably increased and the packing can be made completely impermeable.

The coefficient of friction is, however, increased by the polymer and, because the voids are filled, the self-lubricating power of the original leather is reduced. Tests carried out on a pneumatic cylinder employing polyester rubber impregnated leather packing indicated that although normally high efficiencies were obtained, the quantity and viscosity of the oil used had to be considerably increased







to obtain results comparable with other packings. There was no variation in efficiency during a test of 10,000,000 reversals, and on final examination no wear of the packing was apparent. The conformability of the packing was also reduced. Thus, although the packing could be manufactured to hold closer tolerances than a normal leather packing, their ability to compensate for wear or misalignment was considerably reduced. Work done on impregnation has led to the impression that while impregnation with rubbers will reduce the permeability of a leather packing, the overall performance is not improved. The logical conclusion is that impregnation should only be partial and not extend to the sealing face itself. Thus, the packing would be impermeable and yet retain a self-lubricating working surface. Work is being done to solve this problem.

### Leather Packing Forms

Leather packings are formed or moulded from the flat piece of leather. Although leather will stretch and compress due to its fibrous structure so that cups rings can be formed without wrinkling, the forms into which it can be made are limited (fig. 2).

Variations of the basic forms may be made by bonding layers of leather together and turning the mass to shape. This practice is, however, not advisable for high pressures, because lines of weakness in the bond may lead to early failure. There is virtually no spring or natural elasticity in a leather packing which will enable it to seal at zero pressures. Thus, to effect, positive sealing at low pressures, means must be made for keeping the lips of the seal in close contact with the moving face. Garter springs, finger contactors, spring back-up rings or neoprene foam rubber fillers are often used. Retaining lips or ridges cannot be moulded into leather as with synthetics, and it is not good practice to cut grooves in the material for the location of garter springs. Thus, the equipment itself must be designed to hold the spring in position or, failing that, the leather packing must be supplied complete in a housing which incorporates the spring. The correct loading or support of the packing is most important on equipment which stands idle for long periods, because the oil drains from the packing and distortion occurs with consequent leakage. While the form of a leather packing may influence the design of a gland, the manufacture of the seal is simple and cheap for single items, and lends itself to ease of manufacture for prototype work.

### Corrosion

The mechanism of the corrosion in water of metals shielded by packing materials is not simple. The action of the hydraulic fluid, the contact of different metals together, or the type of surface of the packing material itself, all influence the type and rate of corrosion. The use of rust inhibitors in water system is advisable to reduce oxidation and increase the life of leather packings. Experiments have indicated that vegetable tanned leather, when in contact with mild steel, will inhibit rusting of the area covered. Chrome leather also exhibits this action to a lesser degree.



LEATHER SEALS FOR HYDRAULICS AND PNEUMATICS

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Vegetable tannins will react with iron oxides to form inks or black insoluble compounds. The action is superficial, and must first be preceded by oxidation of the metal. At the same time, vegetable tanned leathers are weakened by rust, which will cause them to harden and crack.

It must, however, be mentioned that sulphates and chlorides are present in the chrome tanning process and chrome leather packings should be made from leather free from water soluble matter, these salts may be the cause of corrosion. Low water solubles are normal for first quality chrome leathers. The shielding corrosion that occurs on stainless steel shafts, under the packing, is governed by the steel itself and the physical nature of the surface of the packing material. The basic phenomenon is not dependent upon the leather or other substance in contact with the steel. Absorbent surfaces will provide more onerous shielding conditions than relatively non-absorbent materials. Thus, shielding corrosion can take place on certain steels under leather packing while none will occur under new rubber packings. Worn rubber packings tested under the same conditions showed extraordinarily heavy corrosion. Thus the phenomenon of the shielding corrosion of stainless steels is a function of the properties of the metal not of the packing (Ref. 5).

(To be continued)





## LEATHER SEALS FOR HYDRAULICS AND PNEUMATICS \*

H. R. Beakbane, B.Sc.

Henry Beakbane (Fortex) Ltd.

(Continued from August 1961 issue)

### Friction

Leather has by reputation an extremely low coefficient of friction. This claim raises no surprise because leather being fibrous and capable of absorbing up to 100 per cent of its own weight of oil is self-lubricating. It is, however, difficult to substantiate this claim from available literature. Calculation of the coefficient of friction from the results of experiments carried out in 1894 indicate a value of  $\mu=0.04$  for greasy leather on a cast iron surface.

Recent work by the British Hydromechanics Research Association (unpublished) give values of approximately  $\mu=0.2$  for both v.t and chrome leather. The tests were, however, carried out dry on a brass plate and using leather having a very low grease content of less than 4 per cent.

Up to an applied of 100 p.s.i. the coefficient of friction was lower than for the unlubricated packing materials tested under the same conditions. The form of the curve given by leather, however, was different to that described for other types of packing materials, and the value of  $\mu$  tended to rise with pressure, no critical pressure being apparent: Fig. 3 (Ref. 6). The influence of an included lubricant is clearly shown in the lower curve. The dry conditions under which the tests were performed are not likely to exist in a machine, consequently deduction from the results is difficult.

Comparative figures for the performance of 2 in. dia. U seals is given in a paper by Denny (Ref. 7). Here again, the no load friction for a leather packing is lower than the average of the packings tested, but as the pressure increase the friction rises above the average. The leather packing tested was, however,

Table 3 (Ref. 7): Friction Characteristics of U Seals (Denny)

Material	Shape	No load friction in lb.	Friction at 3,000 p.s.i. in lb.
Fabric rubber	Square base U seal	7	90
Fabric rubber	Square base U seal	15	86
Fabric rubber	Square base U seal	5	59
Fabric rubber	Square base U seal	10	76
Fabric rubber	Square base U seal	18	80
Rubber	Square base U seal	30	51
Leather rubber	Round base U seal shaped metal support	10	80
Fabric rubber	SEA Type U seal shaped metal support	24	92
Fabric rubber	SEA Type U seal shaped metal support	25	80
Fabric rubber	SEA Type U seal shaped metal support	13	74
Fabric rubber	SEA Type U seal shaped metal support	9	47

\* Paper presented at the Second European Fluid Power Conference.



impregnated with a polysulphide rubber, giving an estimated 80 per cent fill of voids. Experience has shown that as the degree of impregnation of the packing increases so does the force required to operate the system. It is interesting to note that the leather packing was fitted with a shaped metal support in the same manner as for the S.E.A. Type U seals. Normal practice for leather seals is to use a flat back plate. The manner of fitting the seal would probably have little influence on the friction values obtained, although other features would probably be affected. It would appear from these tests that greater variations in friction values are caused by differences in the design of the seals than arise from the materials from which the seals are made.

Values of friction coefficients for different materials tested under identical conditions are given in Table-4.

Table 4: Coefficients of Friction for Materials on Cast Iron

Material	No. lubricant	Slide, dry packing oiled and wiped	Slide, oiled
Vegetable tanned, grain	0.085	0.083	0.083
Vegetable tanned, flesh	0.093	0.13	0.042
V/T picking band butt, grain	—	0.175	0.138
Very heavily greased, flesh	—	0.15	0.051
Chrome tanned, grain	0.098	0.085	0.098
Chrome tanned, flesh	0.10	0.102	0.11
Chrome retan, grain	0.108	0.102	0.093
Chrome retan, flesh	0.128	0.14	0.13
Chrome tanned packing leather grain.	0.0605	0.0855	0.112
Chrome tanned packing leather flesh.	0.0625	0.102	0.11
Woven cotton, soft	0.112	0.108	0.12
Woven cotton, hard	0.0875	0.102	0.116
Natural rubber shore hardness, 80	0.58	0.12-0.5	0.10-
Natural rubber shore hardness, 50	0.21	0.16-0.5	0.095-
Neoprene rubber shore, 90	0.42	0.18-0.4	0.11-
P.V.C. bright unreinforced	0.28	0.125-	0.025-
P.V.C. nylon reinforced	0.28	0.13-	0.05-

A standard sample of material under a constant pressure of 12 p.s.i. was towed along a smooth cast iron bed (finish approximately 30 micro in.) and the force required to move it was measured. It was noticed that when both the sample and bed were dry movement of the sample was smooth and the force required to start movement was very little greater to that required to maintain it. When lubricant was present the difference was much greater, and it became, difficult to obtain reproducible results with the non-fibrous materials due to the effect of 'stiction'. The fibrous or absorbent materials gave much more reproducible results with little difference between starting force and towing force, irrespective of whether lubricant was present or not. Lubricant (a standard light hydraulic oil) seemed to increase slightly the coefficient of friction of the leathers, an effect probably caused by the viscosity of the oil. The most significant result was the marked drop in friction shown by the flesh side of vegetable tanned leather in the presence of oil. These results confirm practical experience.



Where movement is slow and intermittent, leather packings will give freer and more steady movement than packings made from rubbers and synthetic materials. A leather packing will not wipe a rod free of oil in the same way as rubber. A vegetable tanned leather seal is lighter in action than any other normal packing material and will not 'freeze' to a rod. Information on the behaviour of packing materials on metals is, however, incomplete and figures showing variations in the coefficients of friction with increasing pressures are not yet available.

### Working Surfaces and Clearances

The surface finish of the metal against which a packing works will influence the friction, leakage and rate of wear of the packing. Leather, being a fibrous material, can adapt itself to the face against which it works. Although a high finish is an advantage, leather can be used satisfactorily on surfaces with a finish of up to 50 micro in roughness. The accepted practical upper limit for rubber packings is 25 micro in. This ability to seal effectively on rough surface can be used to effect considerable economies in manufacture.

The use of leather oil seals in preference to rubber on the back wheels of certain motor cars enables an expensive machine operation to be omitted on the axle casing. It is also used extensively for packing glands on used machinery where clearances are becoming excessive and rods may be scored and rough. Leather, being fibrous, can accommodate itself to seal against a scored shaft; furthermore, a leather packing that has become scored will often repair or seal itself. It will operate effectively under dirty conditions that would quickly ruin a rubber packing. Leather resists extrusion between sliding

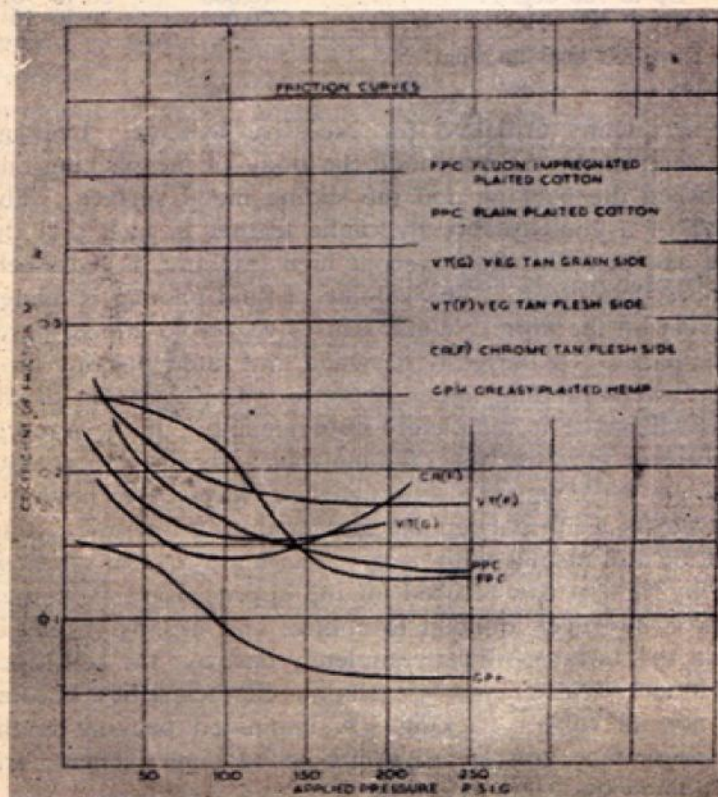


Fig. 3, Coefficient of friction. The influence of an included lubricant is clearly shown in the lower curve.

faces when under extreme pressures. Under normal conditions leather can be



used for sealing pressures of up to 20,000 p.s.i. and in special equipment leather seals have been reported as effective at 100,000 p.s.i. (Ref. 8). The ability to resist extrusion is used to advantage to increase the pressure at which O-rings can be used. O-rings of 90 deg. Shore hardness have a limiting working pressure of 1,500 p.s.i. When used in conjunction with leather anti-extrusion rings, the working pressure can be nearly doubled. Leather, for this reason, is widely used for packings on worn and reconditioned machinery where clearances have become large.

Table 5 : Seal and Packing Materials Limits

Material	Maximum service temperature	Maximum pressure p.s.i.	Surface finish micro in. r.m.s.
Synthetic rubber	300 deg. F.	O-rings 1,500	5 to 50
		to 3,000	
		U-rings 2,000	
		Flange 2,000	
		Other 5,000	
Rubber fabric laminates	Up to 700 deg. F.	10,000	20 to 50
Leather	Up to 300 deg. F.	20,000	20 to 50

\* In conjunction with anti-extrusion back-up rings.

### Leakage

Leather packings are frequently criticised for excessive leakage. Leakage may occur in two ways; by seep of the fluid through the body of the packing and by passage of the fluid between the packing and the sliding metal surface. The closeness of the fibre weave of a good quality hydraulic leather is such that the column of fluid or gas that can pass through, even at high pressure, is extremely small, amounting to little more than creep. The volume of fluid passing is related to the viscosity and to its effect on the fibre. Water causes vegetable tanned fibres to swell and close the fibre spaces. A correctly designed and fitted packing on a water system should be dry when standing under pressure. Impregnation of the leather with waxes or resins will make it completely impermeable. If the impregnating medium is itself a lubricant as in the case of some waxes, the friction characteristics of the leather will not be changed. Impregnating waxes are, however, soluble in oil and they are slowly leached from the leather during operation, thus the permeability of the packing will change with time. There are several synthetic rubbers that are unaffected by oil that can be used for the impregnation of leather. The degree of impregnation is, however, difficult to control and usually results in 100 per cent fill of voids on the surface. This completely destroys the self-lubricating character of the leather packing, and its friction characteristics become almost identical with the normal rubber packing. A laminated packing is the ideal, having a leather working face and an impermeable backing. There are, however, difficulties in producing these.

The passage of fluid between the packing and the sliding face has been studied by Denny (Ref. 7). Results indicated that leakage was governed primarily by the pressure conditions during extension and retraction, also by the speed of operation and the viscosity of the oil.





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Tests on a number of seals indicated that variations in performance were influenced less by the basic design and the material from which the seals were made than by the actual method of manufacture of the seals. A leather seal was included in this test, and although it was, in some ways, not typical, the results given were in line with the main conclusion. It can be assumed that leather has a similar performance to other materials in this respect, thus the conditions of service, correct manufacture and fitting of a seal will be the factors most important in governing leakage. Leather has, however, no natural elasticity and, for this reason, may not seal well at low pressures unless correctly supported. It is probable that in the past this point has been given insufficient attention by designers.

**Conclusions**

Leather, being a natural material, is subject to variation and packings made from it are also variable. Leather packings will thus require greater care in fitting than will synthetic packings. They are subject to dimensional changes with differences in storage conditions, and so cannot be worked to such close tolerances. The adaptability of the material will overcome variations in dimensions, and so there is no merit in specifying small tolerances unless all variables are standardised. Variations in thickness of up to plus or minus 7 per cent are tolerable and diametric variations of plus or minus 2.5 per cent can easily be accommodated by the natural resilience of the material. Leather cups, rams and vees are manufactured from the flat piece and have a tendency to open up when stored unless restrained with bands or formers. Conditions of storage must be good if a leather packing is not to lose its shape.

Leather packings are recommended where smooth action is required at low speeds, and with low pressures particularly where movement takes place intermittently. They are not recommended for use on equipment that is stationary for long periods.

Worn equipment with rough shafts and excessive clearance can be sealed best with leather, as can machinery working under abrasive conditions where the rods cannot be protected with corrugated covers.

Where positive sealing at zero pressure is required, a leather packing must be fully supported. At extremely high pressures leather will resist extrusion, but may show a slight tendency to seep. It can be used in conjunction with rubber packings to prevent extrusion and to enable them to operate at higher pressures.

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## INDIAN LEATHER PRODUCTS ASSOCIATION

The Indian Leather Products Association (ILPA), established in 1987, is a premiere representative body of manufacturer-exporters of superior quality leather and leather products with head office in Kolkata and a regional office in Chennai.

### IMPORTANT ACTIVITIES OF ILPA :

- Brings together manufacturer & merchant exporters on a common platform.
- Stimulates growth & development of the industry as a whole.
- Promotes export of leather & leather products.
- Develops & maintains symbiotic liaison with international trade bodies & Chambers of Commerce.
- Organises trade delegations to international fairs & seminars.
- Organises various Seminars/workshops both the benefit of its members and industry.
- Promotes International Fairs and RBSMs like IILF Kolkata, ILPA Buyer Seller Summit.
- Organises the ILPA SHOW : Leather on the Ramp , one of the most prestigious and sought after Fashion event in Eastern India.
- Closely involved in setting up the Calcutta Leather Complex(CLC).
- Runs and manages the Freya Design Studio : a CLE award winning Design Studio both for leather goods and footwear.
- Runs and manages the ILPA INFRASTRUCTURE DEVELOPMENT FOUNDATION (IIDF) – a state of the art Common Facility Centre.
- Imparts Skill Development Training through ILPA Technical School.



Common Facility Center



Design Studio



CAD CAM Center



ILPA Technical School



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## INDIAN ECONOMY TO START RECOVERING FROM LATE FY20 – SAYS REPORT



The spate of measures taken by the government including reducing the corporate tax rates is expected to revive the corporate sentiment and provide an impetus to the corporate to kick-start their capex plans.

The Indian economy is expected to start its recovery from later part of this fiscal thanks to the initiatives taken by the Reserve Bank for policy rate transmission and steps by the government to boost growth, says a report. According to D&B Economy Observer report, a pick-up in the industrial production will only be gradual and an uptick is expected to be visible during the festive months of September and October 2019.

“The slowdown is real and there is ‘need’ to be cautious, but it is ‘too early’ to press the panic button,” Arun Singh, Chief Economist, Dun & Bradstreet India said, adding that the magnitude of slowdown is not as deep as was witnessed during the global financial crisis in 2009 and the debt crisis in 2012.

Economic growth hit over six-year low of 5 per cent for the first quarter ended June 2019 mainly driven by demand slowdown. He further noted that the loss of momentum in investment demand is “worrying”. Besides, low business optimism, low returns on investment by the corporate and increase in inefficiency in capital employed, also raises concerns over the pace of revival in investment.

The spate of measures taken by the government including reducing the corporate tax rates is expected to revive the corporate sentiment and provide an impetus to the corporate to kick-start their capex plans. However, amid various emerging challenges both globally and domestically, “it is

highly likely that the slowdown that will last longer than expected earlier”, he said.

“We expect the economy to start recovering from late FY20, as the funding constraints ease further with the [RBI](#)’s recent measures to strengthen the transmission channels and the stimulus measures taken to address the current issues from both short term and long-term perspective,” Singh said.

*(Financial Express – 24/09/2019)*

## PESSIMISM SURROUNDS JOBS, FINANCES; CONSUMER CONFIDENCE CONTINUES DOWNWARD TREND IN SEPTEMBER



Amid a pessimism around personal spending and finances, investments for the future and loss of jobs, consumer confidence has further slipped in September. The consumer confidence of Indians slipped by 0.6 per cent, which fell by 3.1 per cent in August, according to a survey. Meanwhile, the confidence in the economy has shown recovery with an uptick of 1.4 per cent. The Thomson Reuters – Ipsos report expects some cheer and optimism in October, taking cues from the cut in corporate tax and fiscal stimuli by the government. The downward trend in confidence has been continued since May, except for a slight improvement in July 2019.

The survey is based on the response in four major categories — jobs, expectations, investment, and current conditions. Ironically, three of the above categories showed a downward trend in the month. The confidence of Indians on the condition of jobs fell by 1 per cent, the confidence on current investments slide down by 1.9 per cent, confidence on investments fell by 1.2 per cent, while the confidence on economic expectations surged by 1.4 per cent, over the last month.

“It is clear, there is a slowdown and Indians are impacted. Since May this year, consumers have been less confident month-on-

month, about finances, investment, and jobs,” said Parijat Chakraborty, Country Service Line Leader, Public Affairs & Corporate Reputation, Ipsos India. The recent reduction in corporate tax and early spirit of festivals would arrest the downward spiral and boost the sentiment upward, he added.

The growth of India's economy has slowed down due to lack of demand and investment in the domestic market. Adding to it, the weak global sentiments have also coupled with India's domestic problems. However, the government has recently announced a slew of measures that could add some cushion to the economy. Among the recent measures announced by the government, the cut in corporate tax added significant cheer among the traders.

### **GST NETWORK STARTS ONLINE REFUND PROCESSING, WILL HELP TAXPAYERS IN CLAIMS**



GST Network lets taxpayers to file refund application (in RFD 01 form) easily and tax officers to process online. GST Network, the IT backbone of the indirect tax system, on Thursday started an online refund process made by the GST Council.

The system lets taxpayers to file refund application (in RFD 01 form) easily and tax officers to process online, said the Network in a statement.

All communications between taxpayers and tax officers will also be online. The online refund process has become effective from September 25, 2019, on the GST portal, it said.

Earlier, the refund process was done for both Central and State GST by one tax authority to whom the taxpayer was assigned administratively but disbursement was done by accounting authorities of central and state tax departments separately.

This was leading to a delay on account of sharing of sanction order with counterparty accounting authority through that tax authority, it said.

The new system has done away with this and after processing is completed by the tax officer, the sanctioned amount will get credited to the bank account of the Taxpayer through PFMS System, it said.

GST Network CEO Prakash Kumar said the new refund process will create a seamless experience for both taxpayers and tax officers.

“This will boost the disbursement speed of refunds and further improve the GST compliance. Taxpayers can view the various stages of processing of their refund application on the GST Portal and can give replies to notice, if any, online on the GST Portal now,” he said.

They will also be given information through text message and e-mail, at important stages of processing of their refund application. The payment of amount will now be done from one disbursement authority, PFMS unlike the earlier method where sanction was done by one authority but payment was made by State and Central Authorities separately.

Meanwhile, all refund applications filed before September 26, 2019 will be processed manually as done under the old refund process

**-: JILTA :-**

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