

ISHRAE Speaks

What's HOT?

The future of Cold Chain Industry in India



Mr. R. Anish Simha Chairman - Refrigeration for ACREX India 2018

The Indian Cold Chain Industry is growing year after year trying to narrow the wide gap that exists between the requirement and availability. Reports on the status of Cold Chain in India and its future is being published by many. There is a need to understand the capacity and type of Cold Chain that is required for the variety of horticulture produce available in India spread across the nation. This encourages studies on the capacity requirement of cold chain in India and its implementation.

The Indian Government has recognised this industry as one of the important sectors, where its major thrust and support is required. The Government is providing subsidy and other schemes to encourage the growth of the Cold Chain Industry. There are Government, or Government funded organisations, monitoring the various aspects of implementation these projects. Our Ministry of Agriculture, Ministry of Food Processing, Ministry of Environment, Marine Product Export Development Authority (MPEDA) etc., are all are all actively involved in one or the other aspect of implementation of Cold Chain Industry.

They also conduct various training sessions for this industry. Organisations like NCCD (National Center for Cold Chain Development) and NABCONS (NABARD's wing for consultancy) have published articles on current Cold Chain scenario in India and its future. These articles are made available in the web for public viewing. The Indian Cold Chain Industry is also being discussed in international news letters. All these reports project a good demand for Cold Chain in India in the coming years which is expected to grow at 20% CAGR.

India being in the tropical climate zone, the current refrigeration systems being offered by indigenous and multinational companies are designed to work on optimal efficiency withstanding the tropical climate. World over there is a concern in conservation of energy, the cold chain industry is not lagging behind. To maintain the cold chain, substantial power is required. The current equipments in the cold chain industry are more or less with high energy efficient motors, use of automation which plays a very important role in monitoring and conserving the energy is being widely followed to save energy. Certified components, raw materials made up of products with CFC Free component which provide green ratings are being used to lower the burden on the earth. Modernisation of ware houses with rack clad or mezzanine assisted type of construction, Automatic Storage and Retrieval Systems (ASRS) not only reduces the foot print but also aid in conservation of energy as their insulation is very strong, reducing the refrigeration load. In the ASRS systems the refrigeration load is comparatively lower as the lighting load, infiltration load and transmission load are lower compared to conventional or other types of cold storage.

The articles on cold chain Industry in India highlight the following:

- Owing to the rising need of the infrastructure to reduce wastage, the cold chain industry in India is forecast to grow at a CAGR of 19% during the period 2017 2022.
- India has about 6300 cold storage facilities unevenly spread across the country with installed capacity of 30.11 Million Metric Tonne. With this capacity only less that 11% of what is produced is stored.
- India loses about INR 15 Billion per annum from agriculture sector only. Horticulture, Dairy, Meat and Poultry, Sea Food and Packaged Product Industry is growing at the rate of 6% to 7% and all these perishables require cold chain.
- Indian Government has brought in schemes with concessions and grants for Cold Chain, it allows 100% FDI through Government route, it encourages private players by promoting PPP initiatives, it has given the infrastructure status to the cold chain, it promotes farm to table - fresh and safe produce.
- The cold chain needs to start at the farm level Post harvest cleaning, precooling, refrigerated transport, sorting and grading, packing, stored in cold storage, again refrigerated transport to outlets and finally consumers. A well organised and efficient cold chain reduces spoilage, retains quality of harvested products and guarantees cost effective delivery to the consumer. In the cold chain if any of the link is missing or weak, it severely affects the whole system.



ACREX 2018, Refrigeration and Cold Chain Pavilion showcases the latest technology in the cold chain industry. We invite you all to witness this modern exposition. I am excited to be there and witness this show.

As part of ACREX 2018 we do have a one day paid seminar on "Cold Chain and Refrigeration" on February 21, 2018. We also have two paid workshops on February 22 and 23, 2018. The speakers are from the industry, both from India and abroad with vast experience in their field. The registrations for the Seminar and Workshop is open. Do register now as there are limited seats.

We look forward to meeting you at ACREX 2018, Bangalore from 22nd to 24th February, 2018 at Bangalore International Exhibition Centre (BIEC).

Global Societies associated with ACREX

ISHRAE gears up for its 19th edition of ACREX India in February 2018

Come February 2018, the 19th edition of ACREX India promises to venture into exciting themes like sustainability, green buildings, eco-friendly innovations and carbon neutrality while expecting more than 600 exhibitors and participation from major global players across 30 countries. One of the highlights for the annual exhibition this year will be ISHRAE's collaboration with **United Nations Environmental Programme (UNEP)** to discuss the technological developments in zero-ODS and low-GWP RAC technologies as well as the regulatory and policy measures needed to scale up their adoption, thereby maximizing ozone, climate and energy efficiency benefits.

At ACREX 2018, UNEP will be hosting an exclusive 'Ozone Pavilion' that will serve as a platform for organizations to come and showcase their respective Ozone2, climate friendly technologies and products. The 'Ozone Pavilion' will serve as a testimony to efforts shown towards building ozone and climate friendly refrigerant technologies or systems. Additionally, in line with the ACREX India vision of becoming the largest network and the most dynamic platform for the HVAC&R and the building construction Industry, ISHRAE has advocated the importance of natural resources, recycling and reusing materials alongside employing energy efficient equipments is the key to organic sustenance. Laying importance on efficient use of resources such as energy, water among other, will aid in protecting occupant's health and improving quality of life.

Sharing his views, Mr. Nirmal Ram Chairman - ACREX India 2018 & ISHRAE Presidential Member, said: "ISHRAE is committed to address contemporary issues and deliver innovative solutions through ACREX India every year and this year we are excited about the unique product offerings that we will be introducing. The 2018 edition of ACREX will be all the more memorable because of ISHRAE's collaboration United Nations Environment Programme (UNEP), one of the leading organizations globally for environmental activities. ACREX India is a flagship event of ISHRAE and has always played an essential role in bringing the industry together while working closely with key brands and partners. We at ACREX believe in organic development and sustainable living which runs parallel with the world we live in and this year, we will continue to strengthen our mission."

ACREX India's main focus revolves around the fact that the Indian consumer market is ever growing and so is its infrastructure. With the HVAC & R industry benefiting from this growth, thereby making India a consumer market to be reckoned with and a destination that attracts many international companies to come and sell their products.

"UN Environment is pleased to co-organize the Ozone to Climate Technology Roadshow and Industry Dialogue at ACREX India 2018. This is the result of a decade-long successful partnership between ASHRAE and UN Environment", said Shamila Nair-Bedouelle, Head of **OzonAction - Montreal Protocol.** "This can be easily demonstrated by many similar events as well as other products jointly developed and offered to best serve the needs of developing economies in complying with the Montreal Protocol and advancing alternative refrigeration & air-conditioning technologies and practices. The joint work plan for 2017-2018 of our two organizations is structured around the theme "Working beyond High-GWP Refrigerants" to reflect international movement to reduce dependency on high-GWP technologies especially in light of the adoption of the Kigali Amendment to the Montreal Protocol. Cooperation with ISHRAE is an example of how the ASHRAE-UN *Environment cooperation is shaping to actively engage* with regional and national associations, ensuring the global messages and programmes respond to the specific needs of developing economies" she added.

The exhibition, held over three days, witnesses a host of both national and international visitors and is known to be the largest platform for networking for the construction industry. ACREX India is also responsible for offering its key stakeholders an opportunity to acquaint themselves

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with the latest technologies in the field. Last year, the theme of "Rising India: Enterprising and Cool" was linked both to the rapidly growing economy of India as well as the welcoming nature of its citizens. This year commits to garner even more attention and positively impact the society that we live in with dedicated pavilions on Refrigeration & Cold Chain, Building Automation (BMS).

"We're pleased to partner with ACREX India again this year. This partnership is an important part of AHRI's continued commitment to supporting the HVACR and water heating industry around the globe. As we work toward standards harmonization and certification as a path to regulatory compliance, ACREX is a critical partner that attracts thousands of industry leaders each year" said **Stephen Yurek, President and CEO, AHRI**.

As ACREX India 2018 gears up to be a truly international show, ISHRAE, as an industry body, continues to protect the environment, facilitate energy conservation and improve the impact of HVAC&R on the marine, food & refrigeration, indoor & outdoor air quality management, medical and the cold chain industry. This is in line with the larger goal of promoting energy efficiency, sustainability and achieving advanced functional and aesthetical value in the HVAC&R industry, that is going to be addressed though ACREX 2018.

Humor: powered by searcho.org

On a lighter note

The senior technician is sent to repair a rooftop unit with the newly hired trainee. They go up on the roof and a conversation begins:

Sr. tech: "You're a bit older than most of the trainees we get. What did you do before this?"

Trainee: "Well, actually nothing. I've been in prison for the last 10 years".

Sr. tech: "For what?"

Trainee: "Oh, I pushed a co-worker out of a window".

Fun facts about HVAC

- 1. The motivation for the first air conditioner wasn't for comfort. Willis Carrier invented a modern air conditioner in 1902 for a publishing company in New York that was experiencing problems with the ink control and paper expansion and contraction due to varying humidity levels.
- 2. The first fully air-conditioned home was built in a mansion in Minneapolis in 1913 by Charles Gates. Sadly, he died before he could ever experience it (4).
- 3. Air conditioning systems helped coin the term "Summer Blockbuster." One of the first businesses to utilize air conditioning technology back in the early



part of the twentieth century were movie theaters. In the 1930's, patrons flocked to theaters to enjoy the films – but also to enjoy the cool air during summer months. Marketers took advantage of this trend and saved their big hits for summertime releases. Thus, the term "Summer Blockbuster" became a part of our vocabulary

- 4. Air conditioners do more than just cool the air. They also take humidity out of the air, making the air more comfortable. Don't set your thermostat fan to the "on" position all day. Rather, choose the "auto" position, where it will blow air only when the cooling system is running. When you leave the fan blowing air all the time, moisture will be blown back into the house and affect your humidity levels (5).
- 5. Electric fans were the predecessor to contemporary air conditioning. Fans do little to actually cool the air, but they produce a "wind chill effect" by evaporating the sweat from your skin and lowering your body temperature
- 6. The first car with optional Air Conditioning was introduced in 1939 by the automobile manufacturer Packard. It wasn't very popular due to its high cost and the fact that the evaporator and blower system took up half the trunk space.

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Are Your Products Assured of Reliable & Accurate Published Performance Ratings?

Certification processes and standards by ASIA AMCA

What does AMCA Certified Ratings Program (CRP) do?

In simplest words, it assures that manufacturers' published performance ratings are reliable and accurate.

This expectation of accuracy includes information on how the product was tested and what appurtenances were included during the ratings tests, which allows for proper selection of the air system components that meet required performance specifications.

Furthermore, manufacturers have assurance that competitive ratings are based on standard test methods subject to review by an impartial authority — AMCA. Lastly, manufacturers' performance ratings are scheduled for check testing based on requirements of the program. These tests are performed in an AMCA laboratory.

Currently, AMCA certifies 21 air movement and control product types. More than 230 manufacturers from around the world are participating, representing more than 3,300 product models. AMCA offers many types of certifications — series fans, for example, can be certified for air performance, sound performance and energy efficiency.

How to Specify AMCA-Certified Projects?

When specifying AMCA-certified products, reference the appropriate AMCA CRP publication and, for added confidence, the appropriate test standard, for example, product specifications can be written as follows for many types of fans, dampers and louvers:

- Fan(s) shall comply with AMCA Publication 11 and bear the AMCA Certified Ratings Program seal for air performance and sound performance according to AMCA Publication 211 and AMCA Publication 311.
- Damper(s) shall be licensed to bear the AMCA Certified Ratings Program seal for air performance, air leakage and efficiency in accordance with AMCA Publication 511.
- Louver(s) shall be licensed to bear the AMCA Certified Ratings Program seal for air performance,

wind-driven rain and water penetration as applicable in accordance with AMCA Publication 511

A specification including certification publications and test standards could look like this, using fans as an example:

"The fan(s) must comply with AMCA Publication 211 and be licensed to bear the AMCA Certified Ratings Program seal. The fans shall be tested for air performance — flow rate, fan pressure, power, air density, speed of rotation and fan efficiency according to ANSI/AMCA Standard 210/ASHRAE Standard 51. Fan sound ratings shall be certified in compliance with AMCA Publication 311 and shall comply with ANSI/AMCA Standard 301. The fans shall be tested according to ANSI/AMCA Standard 300."

AMCA Certification vs AMCA Test Standards

A common area of confusion is the difference between a product that is AMCA-certified and one that was tested to an AMCA standard. A product that was tested to an AMCA standard is not necessarily an AMCAcertified product.

Only a product that passes these checks is licensed to bear the AMCA Seal. AMCA CRP Seals can be affixed to the equipment and placed in catalogs and sizing/selection software.

Checking Certification

When evaluating manufacturers' literature, software selections or physical products, the fastest and most reliable method of ensuring a product is AMCA certified is to search the online AMCA CRP Directory of Certified Products. This database allows searching by product type, license (certification) type and manufacturer. The CRP directory is updated immediately when a certification is awarded or rescinded, and it provides the most recent manufacturers catalog information about the certified product.

Are Your Products Assured of Reliable & Accurate Published Performance Ratings?

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The AMCA CRP provides great value to the air systems industry by providing accountability for published data. For that reason, it is important to be informed about the program and to be wary of possible misconceptions and misrepresentations.

Testing in accordance with an AMCA standard does not mean the product is certified, and not all AMCAcertified products necessarily display a Seal. In addition, the AMCA CRP has made publicly available the steps to certifying and the consequences for check test failure and non-compliance. The more manufacturers, specifiers and purchasers know about the AMCA CRP, the better for the self-regulated integrity of the industry.

For further details, AMCA Whitepapers can be downloaded at www.amca.org/whitepapers.

Global Societies associated with ACREX Decoding and implementing the Kigali agreement

Last year, in Kigali at Rwanda, nearly 200 countries struck a new landmark deal to work upon phasing down the use of hydrofluorocarbons (HFCs). The Kigali Amendment to the Montreal Protocol is legally binding and will come into force from 1 January 2019. The Montreal Protocol, which came into force in 1989, is aimed at reducing the production and consumption of ozone depleting substances in order to protect the earth's fragile ozone layer. As per the agreement, China, which is the largest producer of HFCs in the world, will reduce HFC use by 80% by 2045 over the 2020-22 baseline. India will reduce the use of HFCs by 85% over the 2024-26 baseline.

It is now necessary to implement this agreement as quickly and efficiently as possible. As adopted, the Kigali amendment should reduce the temperature rise at the earth's surface **between 0.1°C and 0.3°C by 2100**. It should be possible to do better, if certain measures are implemented:

- Replace as of now hydrochlorofluorocarbons (HCFCs), whose phase out is already scheduled, by refrigerants with low greenhouse effect. This may require changes to the phase-out schedules, focusing first on sectors where these refrigerants with low greenhouse effect can be quickly implemented.
- Seize the opportunity the replacement of these refrigerants represents, to improve the energy efficiency of facilities and more generally, of entire systems (building insulation, energy recovery, intelligent temperature control ...). We estimate that indirect emissions related to the production of the energy necessary to run cooling systems (including air conditioning), represent approximately 2.61 gigatons of CO2 equivalent, or 63% of total emissions of the refrigeration sector.
- Improve the containment of refrigerants and their recovery at the end current facilities' operational lives;





Mr. Didier Coulomb Director General of the International Institute of Refrigeration (IIR)

- Implement all the necessary measures to install systems using refrigerants with low greenhouse effect safely, such as regulations on the design of facilities and the training and certification of operators. The flammability, toxicity and high pressures of alternative refrigerants should be addressed in a responsible and reasonable manner. Regulations, standards and building codes must be adapted as soon as possible to both guarantee the same safety level and take the evolution of technologies into account.
- Increase the dissemination of information on existing technologies as well as research, development, demonstrations on effective, energy-efficient systems, adapted to alternative refrigerants and alternative refrigeration technologies.

Finally, it should be recalled that the setting up of a cold chain that preserves foodstuffs and thus limits postharvest losses, reduces the total greenhouse effect of the food supply chain. Implementing a cold chain when it does not yet exist is also an environmental duty.

Through its scientific conferences, publications and international network of experts, the International Institute of Refrigeration (IIR) is involved in these initiatives aimed at limiting global warming and promoting sustainable development. The IIR provides science-based, objective, practical and up to date information and expertise on the possible or future technologies and their possible uses in all the fields of refrigeration, including air conditioning, heat pumps and cryogenics.

The IIR presents itself at the disposal of the industry for support, knowledge transfer and guidance through the implementation of this global task.

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ACREX Partner Feature

Non Polar, Non Toxic, Energy Conserving EPDM Insulation for HVAC&R in India



Ajay Gupta CEO- ALP Aeroflex India Pvt. Ltd

EPDM i.e. "Ethylene Propylene Diene Monomer" based Closed Cell Elastomeric Insulation is garnering a lot of attention in the Insulation & HVAC industry. AEROFLEX EPDM Insulation has the distinction of holding GREENGUARD Certificate of compliance. This means that it has met some of the world's most rigorous and comprehensive standards for low emissions of volatile organic compounds (VOC's) in indoor air.

The company shall be showcasing its new generation products in the upcoming ACREX Exhibition in February 2018 at Bangalore.

Salient features of AEROFLEX EPDM are:

- It is classified as a non-polar material which is highly water resistant. This facilitates a low & stable thermal conductivity of the insulation material throughout its life span.
- It does not need any anti microbial additives. The chemical composition is such that it does not support growth of germs, fungi, vermin, microbes etc. Hence, it is ideally suited for Pharma, Food Industry, Healthcare & Hospitality.
- Zero Nitrosamine content (Non-Carcinogenic) according to USFDA test standards.
- AEROFLEX EPDM does not have any Chlorine, Bromine/Halogen content that release toxic gases upon burning. Instead it has Aluminium Tryhydrate as a flame retardent that releases H2O.
- Excellent UV and weather resistance, mechanical strength, flexible, ideal for VRF/VRV, Chilled Water applications.
- Non Copper Corrosion/ Under Insulation Corrosion: Contains negligible amount of Sulfur thereby preventing corrosion on copper & stainless steel tubes.
- Flame & Smoke Proof: AEROFLEX is specially formulated to meet and exceed all international fire norms & standards such as ASTM E84 Class A, UL94 V0, JIS K6911 Non Flammable, EMPA 5.3, DIN 4102 B2, BS476 Part 6&7 ASTM D635.
- It is also certified by FM Approved, IMO, Warrington Fire, ROHS, ASTM G 21/2180 and CBRI.

Due to its wide array of superior properties & tremendous potential EESL (Energy Efficiency Services Limited – a joint venture company of PSU's of Ministry of Power, Govt. Of India) also mandates use of EPDM insulation for Split Air Conditioners Refrigerant Piping under its flagship Super Energy Efficient Inverter Air Conditioner program.

The ALP Group has been founded and mentored over by Mr. Iqbal Singh Anand for over three decades now. This humble entrepreneur of the 1980's has succeeded in creating a mass impact in giving the best quality insulation products & creating a successful business empire encompassing 10 group companies in India & abroad under the ALP brand.

ALP Aeroflex India Private Limited is a joint venture between Eastern Polymer Industries of Thailand & ALP Overseas Private Limited of India for the manufacturing of EPDM sheets, tubes & accessories for the Heating, Ventilation, Air- Conditioning & Refrigeration (HVAC & R) Industries under the brand name of ALP Aeroflex.

ALP Aeroflex offers a complete range of insulation products and accessories. These include Class 'O' closed cell elastomeric nitrile & EPDM rubber sheets, tubes in various lengths, thicknesses and dimensions, special products such as Accosound, Accofoam for acoustic applications.

Anti-Microbial, high strength, high temperature withstanding, self sealing pre slit tubes for customized applications. The accessories range includes flexible ducts, aluminum tapes, insulation support systems, adhesives, paints etc. ALP Aeroflex range of insulation products covers the following, duct insulation, general thermal insulation, chilled water piping insulation, AC unit insulation, roof insulation, under deck, refrigerant piping, cold storage, raised floor, solar plumbing application, under slab, VRF/VRV, transport segment AC units. Also available are aluminum foil lamination, glass cloth lamination, self-adhesive coating over both pipe sections & sheets.

The Indian economy is one of the fastest growing in the world. Amidst this growing market, a conscious and knowledgeable buyer opts for products that give a higher degree of return of investment. AEROFLEX EPDM is one such product, perfect for the country's booming HVAC & R industry.



ACREX Partner Feature

VTM-UTAM - Pioneering Fluid Controls

VTM-UTAM, an Indian-made success story of 30 years, is one of India's leading manufacturer of top-notch Industrial valves and flow meters supplying to many leading industries and Core Sector Projects. As a company that started in 1988, they are approaching 30 years of evolution and experience in creating solutions and manufacturing an exhaustive range of Valves and Flow Metering products. The company serves a customer base of over 200 across industries - spread across both Indian & International markets.

The VTM-UTAM products are produced in the top notch units in the industry, including ISO-registered, state-ofthe-art foundries and manufacturing facilities in city of Jalandhar, in Punjab, India.

As a manufacturer, the company's product line assures of being fully equipped with all the required systems and come through a complete process control and calibration, meeting the international standards. As an organisation, one comes across a competent yet humble team of engineers & strategic thinkers who are passionate about helping clients reach their goals.

"As proud as we are of the VTM-UTAM's Quality-tradition that goes back three decades, it is the VTM-UTAM name, and the quality and reliability that it stands for, that has won the confidence of our customers. Our clientele includes Tata Steel, Mantri, Aditya Birla Group, Sify, Mahindra Swaraj and Bharatiya City." - **Ankur Jain, CEO & Director**. VTM-UTAM thrives on offering the complete range of valves and metering solutions to the industry. Their three mainline brands UTAM, VTM Valves and Fedrel Flow Meters help them achieve this objective.

About the line of products

- VTM & UTAM are Valve brands with products that serve various applications like HVAC, plumbing, firefighting, steam engineering and other critical applications across industry sectors from buildings, data centres, power, oil and gas, pharmaceutical and other process industries.
- **FEDREL** is a leading brand of metering solutions with products for domestic water meters, industrial flow meters for applications in water, steam and oil.



Have you planned your trip to ACREX?

Booking advisory - Time starts now!

Bengaluru will host ACREX'18 and another big event at the same time. The spots would be tighter. We advise you to make your bookings at the earliest, since the tarriffs are going to rise higher than the standard expected price range. You can reserve your accomodation, air travel and local transportation directly or hassel-freely through the ACREX appointed Travel Partner:

International Travel House Limited

T-2 Community Centre, Sheikh Sarai Phase-I, New Delhi-110 017, Tel.: +91-11-26017808

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Grab your stall in time! Climate and Technology pavilion is filling spaces fast

The Ozone2Climate Technology Roadshow and Pavilion supported by UNEP is buzzing with activity and a lot of interest. Book your space at earliest at the prime pavillion of ACREX'18.









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