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APAR

Tomorrow's solutions today



APAR Industries Limited

APAR Industries Limited (formerly Power Cables Pvt. Ltd.) was founded by late Mr. Dharam Singh D. Desai in 1958, is today a billion dollar company owing to its Apar vision coming into fruition due to the persistent efforts spanning over six decades. The Company manufactures and supplies Conductors, Cables, Speciality Oils, Polymers and Lubricants. It has expanded to 140 countries with a strong

An aerial photograph of an industrial facility, likely an oil refinery or petrochemical plant. The central building is a long, two-story structure with a white facade and blue roof sections. The roof is covered with numerous solar panels. To the left, there are large white storage tanks and a complex network of pipes and walkways. In the foreground, a paved area contains a few workers and a small vehicle. The background shows a hazy landscape with hills and other industrial structures under a clear blue sky.

SPECIALITY OIL SOLUTIONS

belief of 'Tomorrow's Solutions Today'. The Company has world-class manufacturing facilities and it delivers innovations, is focused on efficiency optimization for better costs to all the clients. APAR also emphasizes on finding solutions for every stakeholder that align with their core values of integrity, honesty, and accountability.

Introduction

APAR is a diversified company operating in Power and Industrial Sectors. The Company offers value-added products and services in Power Transmission Conductors, Petroleum Specialties, and Power Cables.

It is the largest manufacturer of Aluminum and alloy conductor, the third largest manufacturer of Transformer Oils in the world and largest manufacturer in India for special application and renewable Cables, and has the largest e-beam facility in India whilst also offering the widest range of cables in India. APAR's Specialty Oil Division is the leading manufacturer of Transformer Oils, Rubber Process

Oils, Process Oils, Ink Oils, Industrial and Automotive Lubricants, White Oils, Petroleum Jelly, and Adblue/Diesel Exhaust Fluid (DEF).

APAR continues to remain steadfast in their commitment to delivering on Environmental, Social and Governance goals. For the first time, APAR's name has found a place in the CRISIL ESG rating in 2022. APAR has been working consistently towards lowering their carbon footprint through various initiatives. The reduction in GHG emission is mainly attributable to the Oil business, which registered a reduction of over 40% in absolute GHG emission. It was possible through various productivity enhancement

measures taken at lubricating oil plant at Rabale.

APAR's journey of becoming India's Largest Private Blender and Marketer of Specialty Oils is 60-years-long. APAR proudly manufactures and processes their world-class products at their 3 plants situated in Rabale (Maharashtra), Silvassa (UT), and Sharjah (UAE). The Company is scaled-up with their strong capacity of Rabale and Silvassa plants to 7,00,000 KL/year in 1,10,000 sq.m. areas, and in Sharjah also, and offers 350 grades of oils with 500+ variants of different oils. The power oils have delighted customers in over 125 countries, charging millions of transformers worldwide.

Management

Mr. Anand Kumar Misra is the Senior Vice President (Oil Division), Operations, at APAR. Having a rich experience of over 38 years in various technological areas, Mr. Misra's robust profile is backed with a graduation in Chemical Engineering from the prestigious Indian Institute of Technology (IIT), BHU, Varanasi, and Uttar Pradesh. He performs various key functions which are not just limited to Projects, Quality, Production, and Engineering, but also beyond.

Under his able guidance and leadership, APAR's Oil Division has improved leaps and bounds. Mr. Misra's primary focus has always been to make the Oil Division a World-Class Manufacturing Facility. With a culture of Lean Six Sigma and a focus on zero-breakdowns, zero-defects, and zero-accidents, Mr. Misra is confident and sure that the APAR's Oil Division excels in all the aspects of quality, production, safety, technology, and employee morale.



Mr. Anand Kumar Misra
Senior Vice President (Oil Division)

Product Range

APAR has achieved expertise in manufacturing value-added products like Power Transmissions, Conductors, Petroleum Specialties, and Power Cables. APAR's Specialty Oil Division is a leading manufacturer of Transformer Oils, White Oils, Rubber Process Oils (for Rubber and Tyre, EPM and EPDM Polymers, Thermo-Plastic Elastomers, Printing inks, Hot

Melt Adhesives, Metal Working Fluids and Low PCA Oils applications), Liquid Paraffins, Industrial and Automotive Oils and Lubricants, Process Oils, Ink Oils.

Manufacturing and processing infrastructure with Installed Capacity

APAR's Oil division's manufacturing capability is comprised of -

- Oil Storage capacity of about 75,000 KL spread across all three manufacturing locations.
- Manufacturing capacity of Transformer Oils, White Oils, Rubber Process Oils, Process oils etc. is about 5,40,000 KL / year
- State of the art fully automatic

Lubricants' plant with capacity of 1,20,000 KL/year catering to Auto and Industrial Lubricants market.

- Advanced processing capability of Petroleum Jelly (24,000 MT/year)
- Diesel Exhaust Fluid (DEF) / AdBlue plant (30,000 MT/year)
- APAR's Oil division plants also have many environment-friendly systems, like, ZLD (Zero Liquid Discharge), Water Recycling System, Rain-Water Harvesting System, Solar Power Generation (1.35 MW) etc. along with several energy conservation systems.
- Capability to produce Super Clean Oil (3-5 NAS)
- FDA approved filling facility
- Wide speed range of Filling capability to meet diverse requirements of market.
- Quick and Clean changeovers through Pigging technology
- Fully equipped Quality Control and R&D facility
- Fully Digitized maintenance system and
- Advanced Condition Monitoring of P&M

Production Methodology

Production methodology varies from product to product. Oil production involves different processes like Blending, Filtration, Jellification, Adsorption, Moisture and Low Volatile Stripping Process, etc.

Various base oils and additives are mixed at the recommended temperature in a blending tank and blended for homoge-

Types of Pumps and Valves at Rabale (Maharashtra) Oil unit

Utility of Pumps

Centrifugal Water Pump Horizontal Split Casing	
Make	Quantity
KSB	100
Gear Pump	
Tushaco & Rotodel	
PD Pumps	150
Vacuum Pump	
Shinko Seiki	04
Multi Stage Pump	
Grundfoss	06
Monoblock Centrifugal Pump	
Flow Well/Baecon/Jyoti Pumps/FIGO	12
Dosing Pump	
UKL EDS-100	01

neous mixing of additives in the entire quantity of blended oil, till the desired viscosity and specifications are met.

These finished products are tested as per the established National and International Standard Test Methods. In order to keep the oil at its optimum level, a filtration process is required. At APAR effective oil filtration system is installed which ensures that the oil remains free of impurity and performs its tasks efficiently.

Jellification is the process of turning a substance into a jelly form. With this process, liquid and solid substances are processed under controlled conditions to convert them into Products like Petroleum Jelly.

Adsorption is a refining process that uses a solid medium to extract a component from a mixture. In adsorption, the component being extracted physically

Utility of Valves

Ball Valve	Quantity
Make	
Microfinish & L&T	350
Globe Valve	
Microfinish	04
Butterfly Valve	
Micro Pneumatics	10
S S Flush Bottom Valve	
Micro Pneumatics	15
Control Valve	
Micro Pneumatics	40
Gate Valve	
Kirloskar	25
On-Off Valve	
EL-O-Matic	40
Check Valve	
Microfinish	35

attaches itself to the adsorbent solid and thus refines the oil. Stripping is a physical separation process where one or more components are removed from a liquid stream through vaporization. Sometimes, vacuum is used to carry out this process at low temperature so that product properties are protected.

Role of Pumps and Valves

A wide variety and quantity of pumps and valves further used in the manufacture of oil and to carry out the mixing of oils, blending, holding and filling operations. Majority of the systems are automated at APAR.

Pumps and valves are used for different processes like storage and transfer of oils. It is very important to ensure all the pumps and valves are always healthy and functioning uninterruptedly without any stoppages. The pumps and valves are the backbone of processes and the most important equipment of the plant

PERFORMANCE CURVE

as they are involved in each and every stage, right from the integral to the final operation.

Pump Selection Criteria

APAR has different selection criteria for installation of pumps and valves. Depending upon the application the decision of selecting the type of pumps is made. When highly viscous fluid is to be transferred, Gear Pumps are used.

In case of safety concerns, such as transferring the oil from tanks to percolators, Centrifugal Pumps are preferred (if any valve malfunctions in the auto-mode or in the manual-mode, Centrifugal Pumps can take care of the pressure build-up).

Valve Selection Criteria

APAR, Flange End Ball Valves are implemented in oil application, and Threaded End Ball valves are used in airline applications predominantly. Due to its leak-free sealing potential, Ball valves live a long life.

In the automation plant, wherever it is required and necessary, manual ball valves are installed with limit switches, like in case of any Blender Isolation Valve, the plant uses Ball Valves with limit switches, and Auto



Valves are used for process control purposes. For example, for the tanker unloading header, they use valves with limit switches because of the manual handling, apart from SCADA. The MOC is mostly WCB in oil and CF8 in steam applications, and mostly HDG for airlines or wherever rusting is possible. Breather valves are used to release pressure in the oil lines in case of property changes due to climate.

Further, Check Valves are used for avoiding return of oil in line. Fine Coarse Valves are used where there is a requirement of pressure adjustment in the line, like in case of holding tanks circulation line. Butterfly Valves are also used for firefighting systems.

Maintenance Measures

The Reliability and Engineering team at APAR is focused on a proactive approach rather than a reactive one. There are many preventive and predictive measures which are taken to maintain and ensure the upkeep and health of the machinery, including Pumps and Valves.

APAR recently adopted TPM methodology and implemented the same across its plants to increase the OEE of the filling machines, reduce the unplanned failure, and quality defects. The 5 pillars approach of TPM towards making the plant breakdown-free, defect-free and accident-free are Focused Improvement, Planned Maintenance, and Autonomous Maintenance, Early



Management of New Equipment and Training & Development. Various initiatives and measures taken through the pillars of TPM in the past one year reduced unplanned failure by 60% and increased the OEE of high speed rotary filling machines by almost 15%.

Energy Conservation

Energy conservation is incredibly important and the management team at APAR decided to install 1,350 KWp of roof-top solar system, which meets approximately 40% of the total electricity consumption of the plant. As a part of the energy conservation measure, all the CFL lights have been substituted with LED lights.

Quality Policy

ISO-9001: 2015 is a policy that defines a commitment towards quality for APAR. However, the plant also inherits different policies to define the purpose for the Environment (ISO-1400 : 2015), for Safety and Health (ISO 45001 : 2018), for Automotive and RPO (IATF 16949: 2016), for Testing and Calibration (ISO/IEC 17025 : 2017), REACH Registration for transformer oils and white oils, CGMP and HALAL Certified white oils plant, and VDA-Certified Adblue plant.

Quality Assurance

APAR believes in the Total Quality Management (TQM) philosophy as a means for continuous improvement of all the products and services, total employee participation in quality improvement, and customer satisfaction. The concept of quality addresses all the three dimensions - People, Processes and Products.

Quality assurance includes the steps from administrative and procedural activities implemented in a quality system so that requirements and goals for a product, service or activity will get accomplished.

It is the systematic measurement, comparison with a standard, and monitoring of processes in an associated feedback loop that confers error prevention.

A step towards quality assurance includes proper training at regular intervals. A team to handle customer complaints and a proper system in place for vendor rating is also a must.

The purpose of the Corrective and Preventive Action (CAPA) subsystem is to collect and analyze information, identify and investigate the product and quality problems, and take appropriate and effective corrective and/or preventive actions to prevent their recurrence. Root cause analysis is a part of the problem-solving process and an integral part of continuous improvement.

Awards

APAR had made voluntary disclosure of climate related emissions to CDP (Carbon Disclosure Projects). CDP is a not-for-profit charity that runs the global disclosure system for investors, companies, cities, states and regions to manage their environmental impacts.

The world's economy looks to CDP as the gold standard of environmental reporting with the richest and most comprehensive dataset on corporate and city action.

CDP has awarded APAR with a score of 'B'. APAR oil division at Rabale achieved a "Certificate of Merit" for achieving a zero-accident frequency rate for the year 2021.

The award was presented by the "National Safety Council - Maharashtra Chapter" (Nsc MC) at their 23rd AGM. 130+ Industries from Maharashtra participated in the contest, among which the Rabale Facility received the safety



award. This was the 13th consecutive time APAR Rabale was recognized by National Safety Council - Maharashtra. The Silvassa factory received Green Card from Toyoda Gosei Minda India Limited (TGMIL), affirming the quality and services. Green Card is the highest performance rating that a supplier gets only if it obtains a 100% ranking in all assessment areas.

The Rabale facility has been awarded GOLD & SILVER awards in KAIZEN & POKAYOKE competition organized by CII (Confederation of Indian Industry) in 2022-23.

CII is a non-government, not-for-profit, industry-led and industry-managed organization, with around 9000 members from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 300,000 enterprises from 286 national and regional sectorial industry bodies.

Expansion Plans

APAR has very good production infrastructure and it is built in such a way that Capacity enhancement can be achieved quickly and with low investments by adding balancing equipments.

It is, at present, fully equipped to handle demand surges upto 50% of the current levels of operation.