SINOPEC Research Institute of Petroleum Processing (RIPP), founded in 1956, is a comprehensive research and development organization specialized in petroleum refining and petrochemical engineering subordinated to SINOPEC Corporation. It is mainly devoted to the development and application of petroleum refining technologies, while laying stress on petroleum refining-petrochemical integration and focuses on the R&D of corresponding petrochemical technologies as well. In recent years, it has been reinforcing its innovation in new alternative fuel and energy sources. It is now in the process of transforming itself into an all-directional energy R&D organization mainly engaged in petroleum refining and petroleum refining-petrochemical integration. During the passing years, in aspect of technology innovation, RIPP not only attaches great importance to the cooperation with enterprises and designing institutes, but also lays stress on the market demands. Moreover, it devotes much attention to the guided basic research and applied basic research. Meanwhile, it accumulates scientific knowledge and experience in process and engineering, so as to exert the effect of knowledge innovation to promote technology innovation. RIPP has solid R & D capability and advantages to develop integrated technologies for the whole refinery based on its strength in crude oil evaluation, R&D of petroleum processing technologies, related catalysts, and petroleum product preparation and evaluation. Its research involves ten fields such as clean gasoline/kerosene/diesel production technology, deep processing technology for heavy and inferior crudes, petroleum refining-petrochemical integration technology, aromatics production technology, petroleum product production technology, petrochemical production technology, alternative fuels research, fundamental research on refining and petrochemical engineering technology, applied computer technology and associated analysis technology.

RIPP consists of 17 research departments nurturing a high qualified research team with prominent technological advantage. 1246 staff are sharing the same future with RIPP. Among 959 technicians, there 6 Members of Chinese Academy of Sciences and Chinese Academy of Engineering, 114 senior engineers with professorship, 468 senior engineers and technicians, including 237 with PhD degree and 272 with Master's degree. Approximately 1,000 sets of laboratory scale and pilot plant scale refining and petrochemical test units together with a large array of advanced analytical equipment are engaged in the research and development of oil refining technologies, petrochemical, fine chemicals, additives, and petroleum product applications, etc. In RIPP, National Engineering Research Center for Petroleum Refining Technology and Catalyst (NERC-PRTC), the State Key Laboratory of Catalytic Material and Reaction Engineering, National Research and Development Center for Energy and Petroleum Refining Technology, Lubricant Evaluation Center, Water Treatment Technology Service Center, Key Laboratory of Bio-liquid Fuel and Key Laboratory of Heavy (Interior) Crudes and Unconventional Oil and Gas Resources Refining Technology are located. It is also designated as the organization responsible for domestic Petroleum Products Standardization. In addition, the National Supervision and Testing Center for Petroleum Products Quality and the Petroleum Refining Division of Chinese Petroleum Association are all based in RIPP. Three professional journals related to petroleum refining and petrochemicals, i.e.
“ACTA PETROLEI SINICA”, “Petroleum Processing and Petrochemicals” and “China Petroleum Processing and Petrochemical Technology” (in an English version) are edited and published by RIPP. In terms of education and training, RIPP has a post-graduate training center and conducts post-doctoral research program, and is authorized by the state to confer PhD degrees in chemical technology and applied chemistry as well as Master's degrees in chemical technology, applied chemistry, industrial catalysis and chemical engineering.

Through the construction and development for 56 years, with a research team of prodigious expertise in various disciplines and fully equipped with advanced instruments, RIPP has become a comprehensive R&D organization integrating technology licensing, technology consulting and technical service with petroleum refining and petrochemical engineering development. Ever since its foundation, RIPP has made 881 scientific and technical achievements with awards on a ministerial level as well as 128 State Prizes. Among them there are one State Top Science and Technology Award, two State Invention Awards (First Class), one State Special Prize for Science and Technology Advancement Award, and eight State Prize for National Science and Technology Advancement Awards (First Class). By the end of 2012, RIPP has applied for 4382 sets of domestic patents with 2322 sets granted and 736 sets of foreign patents with 400 sets granted. RIPP won six Gold Prize Awards jointly issued by the State Intellectual Property Office of P.R. China (SIPO) and World Intellectual Property Organization (WIPO). In the year of 2012, RIPP applied for 608 sets of domestic patents with 242 sets granted, and applied 32 sets of foreign patents with 31 sets granted. In recent years, the number of patent applications by RIPP has always ranked first among research institutes in China.

In different historical periods, RIPP has all developed outstanding technologies that played important roles and greatly accelerated the evolution of Chinese refining industry. In the 1960s, RIPP was engaged in the development of Fluid Catalytic Cracking, Catalytic Reforming, Delayed Coking, Urea Dewaxing and new types of catalysts and additives, which were praised as the Five Golden Flowers in China and marked the great breakthrough in the development of modern technology for Chinese oil refining industry from nothing. Meanwhile, jet fuel and special type of lubricating oil and grease for military purposes developed by RIPP had addressed the urgent needs for national defense industry at that time. In the 1970s, RIPP developed Riser Catalytic Cracking Process, Zeolite FCC Catalysts, Semi-regeneration Reforming Process, Bi-metallic Reforming Catalysts that maintained the advancing trends of Chinese oil refining technology. In the 1980s, a large amount of technologies and catalysts were developed, such as new generation of Resid FCC Catalyst, USY Zeolite and REHY Zeolite, RN-1 Hydrogenation Catalyst, Pt-Re Series Reforming Catalysts, SKI Xylene Isomerization Catalysts, Full Daqing AR RFCC
Technology, Needle Coke Production Technology, High Power Tank Engine Oil, etc. RIPP began to establish its own dominant technical areas, and many technologies approached the international level. RIPP played a key role in self-supporting the Chinese oil refining technologies and catalysts. In the 1990s, RIPP developed its FCC family technology, among which the DCC technology won the only First Prize of National Technology Invention Award in the year of 1995, and fulfilled the exportation of Chinese oil refining technology since then. Besides, a series of technologies were developed, such as new type of ZRP zeolite, Heavy Oil Processing Integrated Technology, Medium Pressure Hydro-Upgrading Technology, Medium Pressure Hydrocracking Technology, Low Pressure Combined-bed Catalytic Reforming Technology, Aromatic Extraction Technology with New Solvent, special type of lubricating oil and grease used in Shenzhou series of manned space crafts, missiles, satellites, naval vessels, amphibious armored vehicles, etc. These technologies basically achieved the international standard; some of them attained international advanced level and even international leading level. Since then, RIPP had made great progress in overseas marketing with a serial of technologies and products successively sailing to Southeast Asia, Middle East, Europe and U.S.

Entering 21st century, the Chinese oil refining industry is facing various challenges such as the production of clean fuel, adjustment of product structure and reduction of operating cost. Having foreseen this, RIPP has carried out related R&D projects in advance. It has now successfully developed and commercialized many technologies, such as the production of clean gasoline and diesel fuels, deep processing of heavy crudes, increasing the yield of light oil, the processing of sour crudes, high total acid number (TAN) crudes, heavy crude and refractory crudes. These technologies not only support the development of refining industry, but also provide RIPP with necessary technology reserves.

In 2012, RIPP centered its scientific research on development strategies put forward by SINOPEC, including "Resource Strategy, Market Strategy, Integration Strategy, Internationalization Strategy, Differentiation Strategy and Green & Low-carbon Strategy", and achieved remarkable progress in accelerating innovative breakthroughs of strategic new technology, perfecting core technology, improving special technology and expanding proactive fundamental research. The demonstration facility for aromatic absorption and separation industry was completed and put into production, making SINOPEC a member of those corporations owning aromatic integration technology around the world. Flight test was started for biologic jet kerosene. RIPP led the research and development of relevant technologies in China, and roughly completed the strategic arrangement for production technology research on alternative fuels, involving many new strategic fields, such as, biomass fuels and lubricants, combined
refining of crude and coal, coal-to-liquids post-hydrotreatment, Fischer-Tropsch synthesis and product quality improvement. For oil refineries, RIPPP provided the all-round technical supports regarding supply of clean gasoline to State V emission standard in Beijing. Great achievements were made in the development of green refining technologies for producing clean LPG, gasoline, jet kerosene, diesel and lubricant, etc. RIPPP’s special lubricant reliably guaranteed lubrication for China’s first manned space rendezvous.

Facing the future and following the orientation as technology R&D center, decision-making supporting center and training center of SINOPEC, RIPPP will continue to enhance its capability of proactive innovation, fully play the role of a propeller in science and technology innovation, and endeavor to provide all-around technical support for SINOPEC to become bigger, stronger and better.