



# BASF PETRONAS Chemicals Report 2017

Including Toray BASF PBT Resin

Chemistry Drives Sustainability



## Table of Contents

<b>Welcome</b>	<b>3</b>
<b>BASF PETRONAS Chemicals</b>	<b>4</b>
<b>Environment and safety</b>	<b>6</b>
<b>Business development</b>	<b>11</b>
<b>Employees and society</b>	<b>13</b>
<b>Further information</b>	<b>17</b>

## About this report

“BASF PETRONAS Chemicals Report 2017 - Including Toray BASF PBT Resin” is published annually as a concise document about the company’s development, progress and performance in regard to economy, ecology, and society. The reporting period for this publication is the financial year 2017. All data in the report are the combined 100% total from BASF PETRONAS Chemicals and 100% from Toray BASF PBT Resin, which is located at the BASF PETRONAS Chemicals site, without BASF Services.

## Welcome

### Message from the Managing Director

*Dear friends and stakeholders,*

I am delighted to present BASF PETRONAS Chemicals – Report 2017, which provides an overview of our commitments to all stakeholders: employees, customers, shareholders, authorities and the community where we operate.

2017 was a special year for BASF PETRONAS Chemicals: our 20th anniversary. Two decades after our business was established, we are currently completing the second phase of investments. We commenced the supply of 2-Ethylhexanoic Acid (2-EHAcid) to customers, and achieved the first on-spec production of highly reactive polyisobutene (HR-PIB). Furthermore, we began the stepwise start-up of our integrated aroma ingredients production.

We want to use the expansion of BASF PETRONAS Chemicals to further improve our safety culture, operational efficiency and environmental management. The GC Mark Green Company certificate demonstrates that we succeed in minimizing our negative impact upon the environment.

We have embarked on a series of excellence initiatives in business, procurement and operations, as well as the contractor management transformation program.

At BASF PETRONAS Chemicals, we closely listen to the expectations of our customers and stay close to emerging business trends. As part of this, in 2017 we extended the Halal certification of our portfolio to 2-EHAcid, and worked to certify our aroma ingredients. This adds on to the Star K Kosher certification received for aroma products. The team is also working towards obtaining accreditation under the FSSC 22000 Food Safety System, an important prerequisite for specialty chemicals. This includes our OHSAS 18001 certification for Quality Management System.

As in past years, we collaborated with neighboring companies and local non-profit organizations on projects that support biodiversity and community development. This also includes volunteer involvement of our employees for the community.



Sustainability is an integral part of our core values and allows us to strengthen our business. We will continue to play an active role in engaging with our stakeholders to foster positive change, inspire action and enhance our sustainability performance. I offer my warmest thanks for all the support and I look forward to driving sustainability for future growth.

A handwritten signature in black ink, appearing to read 'Sven Crone', written in a cursive style.

**Dr. Sven Crone**  
Managing Director  
BASF PETRONAS Chemicals Sdn. Bhd.

# BASF PETRONAS Chemicals Sdn. Bhd.

## Shareholders



### About BASF

At BASF, we create chemistry for a sustainable future. We combine economic success with environmental protection and social responsibility. The more than 115,000 employees in the BASF Group work on contributing to the success of our customers in nearly all sectors and almost every country in the world.

Our portfolio is organized into five segments: Chemicals, Performance Products, Functional Materials & Solutions, Agricultural Solutions and Oil & Gas. BASF generated sales of €64.5 billion in 2017. BASF shares are traded on the stock exchanges in Frankfurt (BAS), London (BFA) and Zurich (BAS).

Further information on BASF is available on the internet at [www.basf.com](http://www.basf.com)



### About PETRONAS Chemicals Group Berhad

PETRONAS Chemicals Group Berhad (PCG) is the leading integrated chemicals producer in Malaysia and one of the largest in South East Asia. It operates a number of world class production sites, which are fully vertically integrated from feedstock to downstream end-products. With a total combined production capacity of over 12 million metric tons per annum (mtpa), it is involved primarily in manufacturing, marketing and selling a diversified range of chemical products, including olefins, polymers, fertilizers, methanol and other basic chemicals and derivative products. Listed on Bursa Malaysia and with three decades of experience in the chemicals industry, PCG is established as part of the PETRONAS Group to maximize value from Malaysia's natural gas resources.

PCG is one of the top 10 companies in the FTSE4Good Bursa Malaysia (F4GBM) Index, out of 200 largest companies ranked by market capitalisation. It is committed to ensuring that its business practices are in line with globally recognised standards for Environment, Social & Governance (ESG) practices.

Further information on PCG is available on the internet at [www.petronaschemicals.com.my](http://www.petronaschemicals.com.my)

## Members of the Board of Directors



**Datuk Md Arif Mahmood**

Chairman of the Board of Directors,  
BASF PETRONAS Chemicals Sdn Bhd and  
Executive Vice President and  
Chief Executive Officer of Downstream, PETRONAS  
(PETRONAS Group of Companies)



**Datuk Sazali bin Hamzah**

Managing Director / Chief Executive Officer,  
PETRONAS Chemicals Group Berhad  
(PETRONAS Group of Companies)



**Hartwig Michels**

President,  
Petrochemicals Division, BASF SE  
(BASF)  
(effective April 1, 2017)



**Dr. Andrea Frenzel** (until June 2018)

Succeeded by **Dr. Ramkumar Dhruva** (as of July 2018)  
President,  
South & East Asia, ASEAN and Australia/New Zealand  
(BASF)



**Dr. Sven Crone**

Managing Director,  
BASF PETRONAS Chemicals Sdn. Bhd.  
(BASF)

## Environment and safety

At BASF PETRONAS Chemicals, we never compromise on safety. This principle is anchored in our strategy and underlines our philosophy in operating our own facilities and dealing with third parties. BASF PETRONAS Chemicals has embraced the goals of the chemical industry's voluntary Responsible Care® initiative which covers environmental protection, health and safety (EHS) as well as security and energy efficiency, and applies them to its operations. The Responsible Care Management System (RCMS) is based on BASF's strategy and is binding for the whole BASF Group. Just as the company applies stringent standards to its own operations, we demand the same high standards of our contractors and suppliers. We choose carriers, service providers and suppliers not just on the basis of price, but also based on their performance in environmental and social responsibility.

### Process safety

#### ■ Ongoing improvement on process safety on-site

BASF PETRONAS Chemicals undertakes continuous efforts to improve its process safety performance and competence.

2017 saw a completion of revalidation of safety programs for our Oxo Complex and Acrylics Complex. These efforts were completed to ensure the safe operation of the plants throughout the entire operating life cycle.

We also introduced a harmonized and updated procedure to improve the isolation of process equipment from hazardous energy sources.

We further introduced a revised version of Permit To Work, one of whose key features is the "four-eyes principle" for verification of Hazard Assessments, which also helps to ensure that pre-work safety measures are in place.

### Product stewardship

Product stewardship is an integral business process for BASF PETRONAS Chemicals. In this concept, everyone involved in the lifespan of the product is called upon to take ownership to reduce the environmental, health, and safety impact.

We support customers and partners in the safe handling and use of our chemicals, for example through sharing sessions with local and overseas tank terminals, as well as through chemical safety awareness training for Kuantan Port Consortium staff.

We also conducted a number of audits of partners to ensure uniform standards of excellence. With these audits we assess the suitability of the warehouse and tank storage and advise them on all safety relevant aspects. This ensures that both raw materials and BASF PETRONAS Chemicals products are stored as per legal requirements.

Training in the safe use of our products is also part of our product stewardship program. RESTAB, developed by BASF, is a technology package that restabilizes acrylic monomers by catching a radical chain polymerization at an early stage, thereby stabilizing the reaction. RESTAB handling training was conducted in collaboration with the operation staff and emergency response team.



Product stewardship engagement and audit at a third party tank terminal, VOPAK Terminal Merak, Indonesia

## Emergency response

### ■ Strengthening emergency response readiness at site

Both emergency response and crisis communications procedures and protocols are reviewed with BASF regional input to ensure incidents are managed in a safe, effective and efficient manner.

BASF PETRONAS Chemicals also works closely with neighboring companies in drill emergency response as an active member of Gebeng Emergency Mutual Aid, a voluntary crisis management organization, set up from an alliance between Government agencies and private manufacturers in Gebeng.

Additionally, the emergency response team in BASF PETRONAS Chemicals is involved in various internal as well as external exercises, including regular drills and a fire prevention program which were conducted throughout the year to ensure awareness and strengthen the readiness of our emergency response team.



Emergency response teams undergo regular, extensive training.

## Security

### ■ Specially designated site by the Prime Minister's Office with 24-hour security program

Our site is categorized as a "Key Point Installation - Keypoint 1" under the Malaysian National Security Council of the Malaysian Prime Minister's Office. It is guarded 24 hours by security staff, who work on 12-hour shifts.

To ensure the company's physical security measures comply with the requirements relevant to this status, an annual audit was conducted by the Chief Government Security Officer's Office in July 2017.

The company's security team also conducts daily product vehicle inspections at the inward and outward vehicle inspection bays. Non-conformances were highlighted to both the local service providers and logistic department for necessary action to close non-conformance matters.

In addition, the security access system will be replaced in 2018, to further improve the company's physical security. The existing system only provides access control and time attendance tracking, while the new system includes headcount tracking during building evacuation, patrol tracking, closed-circuit television (CCTV) and product vehicle inspection.

## Transportation and distribution safety

### ■ Enhancing the compliance of the loading and unloading process

In 2017, BASF PETRONAS Chemicals further enhanced compliance in loading and unloading processes at the site.

This includes strict "80/20" rules for bulk transport: the minimum filling of liquid product into the ISO tank shall meet at least 80% of the tank's capacity, or the maximum residue of liquid product is 20% of the tank's capacity, to prevent surging of the liquids in transit. Other rules cover the securing of cargo for loading and stuffing activities.

Additionally, the company has fully implemented a comprehensive checklist system for all transportation and distribution safety activities.

## Water

The sustainable use of water and the conservation of water resources are important to BASF PETRONAS Chemicals. We continuously seek ways to reduce water use in our production and evaluating further water protection and supply concepts at our site especially with the commissioning of new complexes at our Verbund site.

100% of the water supply at the site is from drinking water, as the main available water source, the same as previous years. No supply came from surface water or ground water.

Our new Waste Water Treatment Plant (WWTP) train C extension project had a successful start-up in 2017, to cater for the waste water treatment needs of new investments at the Kuantan site.

We are also evaluating wastewater in terms of risk, drawing up suitable monitoring approaches for compliance with these measures, whereby we comply with the applicable standards set by the authorities. We always strive to reduce the emissions of water pollutants through sustainable water management along the entire value chain, especially with the site's expansion.

Emissions of organic substances to water (COD) increased to 176 metric tons (2016: 122 metric tons) due to the commissioning of our new production complexes.

Nitrogen emissions to water significantly decreased compared to previous years, to 0.8 metric tons. Levels in 2016 had been above normal levels due to a spillage of ammonia which was controlled, recovered and sent to WWTP for treatment.

Emissions of heavy metals to water increased to 0.14 metric tons in 2017 (2016: 0.11 metric tons) due to an increase of usage for anti-corrosion in our new cooling tower. This was

needed to cater for our new production complexes. Despite the increase in 2017 we remain well below the limit of 2.0 as provided by environmental authorities. We strive to continuously further reduce our emissions by optimizing our processes and raw materials.

### Emissions to water (total): Organic substances (COD) (metric tons)

2017	176	
2016	122	
2015	168	

### Emissions to water (total): Nitrogen (metric tons)

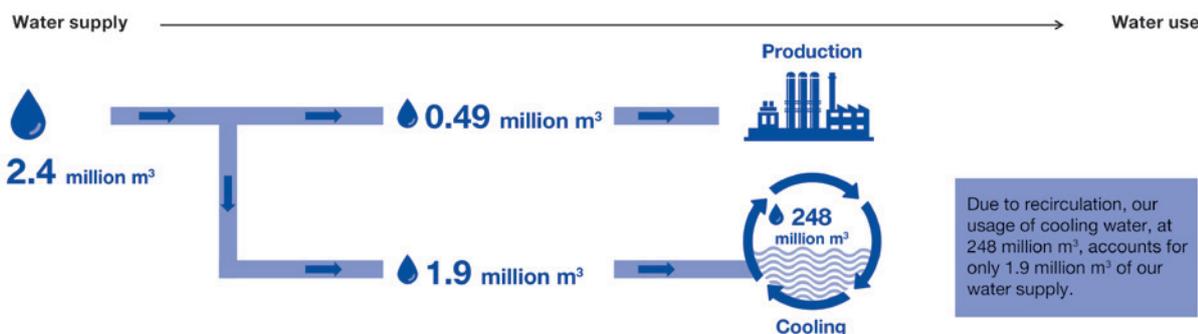
2017	0.8	
2016	2.1	
2015	1.6	

### Emissions to water (total): Heavy metals (metric tons)

2017	0.14	
2016	0.11	
2015	0.15	

Water used for production rose to 0.49 million cubic meters in 2017 (2016: 0.43 million cubic meters). Cooling water demand was 248 million cubic meters (2016: 165 million cubic meters). This metric refers to water that came into contact with products. Due to high levels of recirculation, the total water supply was only 2.4 million cubic meters in 2017 (2016: 2.1 million cubic meters), despite the commissioning of the new projects.

### Water consumption (million cubic meters)



Water supply (million cubic meters)

2017	2.4	
2016	2.1	
2015	2.0	

Water use (million cubic meters)

	Production	Cooling
2017	0.49	248
2016	0.43	165
2015	0.42	162

## Waste

- **By-products from one plant area often used in another as starting material**

BASF PETRONAS Chemicals' fundamental principle for handling waste is "avoid, reduce, and recycle". We only dispose of waste after all recovery options have been exhausted, and we do so in a manner that reduces environmental impact. In this respect, the Verbund concept, i.e. the close integration of production processes, is one of BASF PETRONAS Chemicals' greatest strengths; the by-products from one plant are often used in another as starting material. Substitute fuels recycled from waste are also used in power plants and in some production plants.

We regularly carry out audits to inspect external waste management companies, ensuring that hazardous waste in particular is properly disposed of. In 2017, we conducted audits of a number of waste treatment contractors to ensure that there is a safe, transparent and fully compliant waste treatment process.

We closely monitored soil at the site, part of the ongoing environmental monitoring program.

As a result of higher production rates, in 2017, the total waste reached 10,271 metric tons (2016: 9,164 metric tons), of which 56% was recycled (2016: 67%). The reduction in the recycling rate was due to the larger amount of waste created by the commissioning of the new production complexes and associated activities.

### Waste (total) (metric tons)

Year	Total Waste (metric tons)	Recycled Waste (%)	Amount of waste	Amount of recycled waste	Recycling Rate (%)
2017	10,271	56%			44%
2016	9,164	67%			33%
2015	8,320	58%			42%

■ Amount of waste ■ Amount of recycled waste



Aerial view of the waste water treatment plant

We dispose of hazardous waste according to the regulatory requirements of the Department of Environment, Malaysia. Non-hazardous waste, along with waste categorized under "special waste management", is disposed of at the Jarangau-Jabot landfills. Waste disposal by incineration increased to 22% in 2017 (2016: 12%). This was caused by the amount of waste from the commissioning of new production complexes and associated activities on-sites. 20% of waste was sent to landfill in 2017 (2016: 20%), with no underground storage of waste at the site.

### Disposal (%)

Disposal Method	Percentage (%)
Incineration	22
Landfill	20
Underground storage	0

## Emissions to air

Greenhouse gas emissions of BASF PETRONAS Chemicals increased slightly to 680,730 metric tons in 2017 (2016: 671,752 metric tons).

With the help of a Continuous Emissions Monitoring System, installed in the middle of 2011, in 2017 we continued to analyze emissions gases online. This system enables a live data feed, 24 hours a day, for faster response and mitigation. This also ensures a more accurate reading and monitoring of emissions gases. The system is also implemented in our new production complexes.

In 2017, our emissions of air pollutants were 715 metric tons, an increase from the previous year (2016: 437 metric tons). Emissions in 2016 were exceptionally low, due to a long maintenance and equipment overhaul period.

### Greenhouse gas emissions (total) (metric tons of CO<sub>2</sub> equivalents<sup>1</sup>)

Year	Total Emissions (metric tons of CO <sub>2</sub> equivalents)
2017	680,730
2016	671,752
2015	676,946

<sup>1</sup> CO<sub>2</sub> equivalents include CO<sub>2</sub>, N<sub>2</sub>O, CH<sub>4</sub>, HFC, PFC, SF<sub>6</sub>

### Air pollutants<sup>2</sup> (without CH<sub>4</sub>) (metric tons)

Year	Total Emissions (metric tons)
2017	714.73
2016	437.42
2015	663.29

<sup>2</sup>Air pollutants consist of CO, NO<sub>x</sub>, NMVOC, SO<sub>x</sub>, dust, NH<sub>3</sub>/other inorganics

## Energy

BASF PETRONAS Chemicals takes a three-pronged approach to responsible use of energy, focusing on efficient energy generation, reducing energy consumption in our production facilities, and developing products and technologies for increased efficiency in our use of available energy.

Generally, energy efficiency is linked to the demands of the different production plants on the site. Energy, heat or steam from production processes is not discharged to the environment, but utilized at other plants, according to BASF's Verbund concept of integrated production.

In 2017, steam consumption increased slightly, to 2,198,642 metric tons (2016: 2,165,368 metric tons).

In 2017, electricity consumption increased to 358,990 MWh (2016: 337,326 MWh). This increase resulted from lower levels of production due to a scheduled shutdown of our turbine generator for a major revamp in 2016.

There was an increase in fuel consumption from central power plants and boilers compared to the previous year, to 1,107,362 MWh (2016: 1,045,973 MWh) due to the additional steam demand of our new production complex and the increase in production overall.

### Steam consumption (total) (metric tons)

2017	2,198,642	
2016	2,165,368	
2015	2,265,971	

### Electricity consumption (total) (MWh)

2017	358,990	
2016	337,326	
2015	312,854	

### Fuel consumption (central power plants and boilers) (MWh)

2017	1,107,362	
2016	1,045,973	
2015	1,120,344	



Night view of our integrated aroma ingredients complex

## Business development

BASF PETRONAS Chemicals Sdn. Bhd. is a 60:40 joint venture between BASF and Petroliaam Nasional Berhad (PETRONAS), Malaysia's fully integrated oil and gas multinational, under its subsidiary PETRONAS Chemicals Group (PCG). Entering its 21st year of partnership, it has brought together a vast amount of experience, innovation, technology and strategically located resources.

In 2017, high prices due to favorable market demand (especially for acrylics and oxo), combined with high production volumes as a result of operational efficiency, as well as improvements on unplanned losses, all led to a significant increase in the combined sales of BASF PETRONAS Chemicals and Toray BASF, to €625 million (2016: €470 million).

Sales (million €)

2017	625	<div style="width: 100%;"></div>
2016	470	<div style="width: 75%;"></div>
2015	566	<div style="width: 90%;"></div>

### Integrated aroma ingredients complex

- Facility to produce citral and its precursors, as well as citronellol and L-menthol

The MYR1.5 billion (approximately \$500 million) complex, with its cutting-edge technology, will establish Malaysia as an important hub in Asia Pacific for the world-wide supply of aroma ingredients.

The new integrated aroma ingredients complex houses a facility to produce citral and its precursors, as well as associated downstream plants that manufacture citronellol and L-menthol to meet the growing demand in the flavor and fragrance industry.

Start-up of the new integrated aroma ingredients complex in Kuantan, Malaysia was conducted in a step-wise approach. We have already achieved several key milestones and shipped the first volumes of citral, citronellol and precursors to customers.

### Successful completion of HR-PIB plant

- Important intermediate for fuel and lubricant additives

In 2017, we successfully started-up our new plant for the production of highly reactive polyisobutene (HR-PIB) with a total capacity of 50,000 metric tons per year. The utilization of the plant will be continuously increased as customer qualifications are completed.

HR-PIB is an important intermediate product for the manufacturing of high performance fuel and lubricant additives. The new plant strengthens the presence of highly advanced and forward oriented technologies and expertise in Malaysia and the region. It will further increase supply security for HR-PIB, especially for the Asian market.



Loading bay of the HR-PIB Plant

### Launch of 2-Ethylhexanoic Acid plant

- Successful Halal certification for 2-EHAcid

2-Ethylhexanoic Acid (2-EHAcid) is a chemical intermediate used as a compound, for example in production of synthetic lubricants and oil additives.

The 2-EHAcid plant, with a capacity of 30,000 metric tons per year, benefits from backward integration into the site, allowing high delivery reliability and efficient use of energy and feedstocks.

After the initial start-up in the fourth quarter of 2016, the plant continued to optimize production and successfully passed the Halal certification audit for 2-EHAcid in 2017.

## Investment in excellence initiatives

### ■ Upgraded utilities and infrastructure for optimization of resources

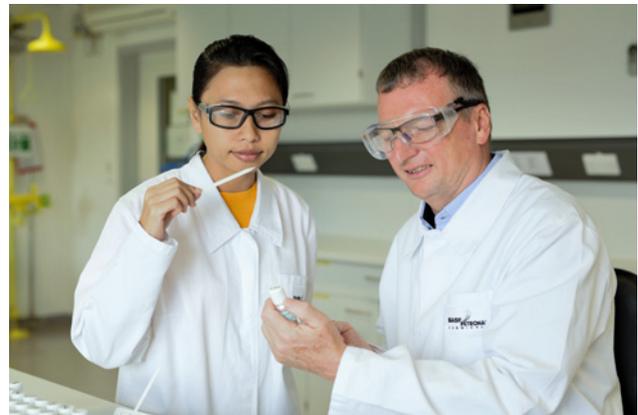
The second phase investment at BASF PETRONAS Chemicals Verbund site in Gebeng includes the 2-Ethylhexanoic Acid (2-EHAcid) plant, the integrated aroma ingredients complex and the highly reactive polyisobutene (HR-PIB) plant. These significant investments accompanied by an expansion of our site infrastructure have all been implemented in the last three years.

Measures to improve operational performance include production optimization at our Butanediol (BDO) complex to increase reliability and reduce unplanned downtime.

We also invested in our own steam supply project to cater to the increased demands at our site. In addition BASF PETRONAS Chemicals also invested in our own nitrogen supply to ensure reliable and efficient supply to support the needs of existing users and new investments.

The recent expansion of BASF PETRONAS Chemicals also requires us to review our internal business processes. As part of this, a range of excellence initiatives were identified and implemented: contractor management transformation, procurement excellence and business excellence. Contractor management transformation aims to ensure safe and efficient contract services. The goal of procurement excellence is increasing the effectiveness of our procurement organization. Business excellence is designed to decrease costs, improve margins and improve sustainability.

We demonstrate our commitment to meet our customers' demands by complying with various management system standards, including ISO 9001:2015 Quality Management System standard, ISO 14001:2015 Environment Management System standard and OHSAS 18001:2007 Occupational Safety and Health Management System standard. BASF PETRONAS Chemicals has received Star K Kosher certifications for our aroma ingredients and 2-EHAcid products, as well as certification to the MS 1500 Halal standard. Our GC Mark Green Company certificate demonstrates that we succeed in minimizing our negative impact on the environment.



Quality assurance and continuous improvement helps us meet our customers' expectations.

# Employees and society

## Employees

Employees forming the “best team” are the foundation of our excellent performance and ensure our long-term success: their skills, commitment and motivation make BASF PETRONAS Chemicals competitive and fit for the future. This belief is seen in the tangible efforts and resources the company puts into the development of the employees as well as into company sponsored activities to strengthen the team. As of the end of 2017, BASF PETRONAS Chemicals and Toray BASF Resins had a combined total of 917 employees (2016: 904).

### Recruitment

- “Grow” Graduate Program® for management succession

We aim to recruit, develop and retain the best employees, and allow them to fully realize their strengths and potential.

Recruitment efforts in 2017 closely met the forecasted headcount plan. To support the commissioning and start-up of new production, employment opportunities were offered via multiple platforms in line with site expansion, including both permanent and temporary positions as well as delegations and secondment from the parent companies.

BASF PETRONAS Chemicals continued to offer “Grow” Graduate Program through the collaboration with University Malaya. This program is part of our initiative to develop internal talent for effective management succession.

We offered internships to students from various local universities, providing them with a platform to apply acquired knowledge to a real work experience.

For the fourth year running, the company continued the Taylor’s World Class Scholarship 2017. Through this program, we housed a sponsored student for an internship program, providing industry exposure and real working environment experience at BASF PETRONAS Chemicals.

Number of employees (as of December 31, 2017)

Year	Number of employees
2017	917
2016	904
2015	845

### Career development

- “TOP Team” as desired cultural values with career development opportunities

In alignment with the company’s progression and in ensuring the agility of our staff, we have created a culture-building think tank within the company. The team developed a framework of enhanced values and cultural beliefs for BASF PETRONAS Chemicals by defining required behavioral traits.

Trust, Ownership, Positive Attitude, and One Team were determined to be most important values. These led to the identification of “TOP Team” as the company’s desired working culture, a simpler approach that meets current business needs. We have also launched the Employee Excellence Plan as part of the roll-out of “TOP Team”, including Supervisory Leadership Development and Leadership Excellence through Awareness and Practice.

In addition to the TOP Team initiative, we also support the development of our employees with performance-based remuneration, targeted training opportunities and various skill development initiatives, as reflected in our strategic pillar, “Developing Talent for Growth”.

In 2017 alone, we implemented a wide range of training and career development programs, which benefited nearly all of our staff population, including workshops on the company performance management system. Those training sessions were conducted either in-house, by competent internal trainers through customized training sessions, or through public courses.



The TOP Team concept was launched in late 2017.

## Working at BASF PETRONAS Chemicals

- Ensuring work-life balance via family programs, flexible working hours, and recreational activities

Our employees have access to a range of options to balance work, family commitment and leisure. Under our flexible working hours system, employees are given freedom in managing their working hours, while being responsible for completing the required 42 hours per week.

The company's remuneration philosophy is to benchmark compensation at BASF PETRONAS Chemicals against other chemical companies in Malaysia. To position the company as an attractive employer, we compensate employees in accordance with or better than the industry standards.

Non-monetary benefits include medical, dental-optical benefits, insurance, Hajj-Umrah leave, education grants, and periodic medical check-ups. In addition, sports and recreational activities are also held on an annual basis for staff to participate and for them to take a break from work.

Management briefing and employee dialog sessions are also held quarterly at both the Kuantan site and the Shah Alam headquarter as an effective platform for the management to share latest company's news and for the employees to share their feedback about important operational aspects of the company.



The management team regularly holds dialog sessions with staff.

## Inclusion of diversity

- Equal opportunity regardless of gender, race and age

The long-term success of BASF PETRONAS Chemicals relies on a diverse body of talent that can bring fresh ideas, perspectives and views to their work. Employees are offered equal opportunities at BASF regardless of gender, race, and also age. In 2017, the largest proportion (52.3%) of employees at BASF PETRONAS Chemicals was in the 26-39 year old age group (2016: 51.8%).

Employee age structure (%) (as of December 31, 2017)

Up to and including 25 years	3.6	■
Between 26 and 39 years	52.3	■
Between 40 and 54 years	40.6	■
55 years and older	3.5	■



The long-term success of BASF PETRONAS Chemicals requires a diverse body of talent.



Wellness, sports and recreation activities were held throughout 2017.

# Occupational health and safety

## Occupational health

Our global health management serves to promote and maintain the health and productivity of our employees. Our worldwide standards for occupational medicine and health protection are specified in a directive that is implemented by a global network of experts.

This was once again supported by numerous emergency drills and health promotion measures in 2017. In order to impart the correct knowledge of first aid management while evaluating the efficiency and capability of medical emergency preparedness on site, activities were conducted throughout the year in medical emergency preparedness, including First Aid Awareness, a First Response Life Support session with an external instructor and paramedic team, medical drills, and an ongoing Advance First Responders training.

We raise employee awareness of important health issues by offering tailored activities to targeted groups. Health talks were held both at the Kuantan site and at the Bukit Jelutong office. A blood donation drive was also conducted in both locations, with a high participation rate from employees.

The BASF PETRONAS Chemicals health checks form the foundation of our health promotion program and are offered to employees at regular intervals. These include vaccination programs as well as health and hygiene walk-throughs, conducted to monitor and prevent the occurrence of common infectious diseases among employees.



**BASF PETRONAS Chemicals emergency response team in action during a major medical drill**

## Occupational safety

- **Lost time injury rate for employees and leased personnel at 0.47 per million working hours**
- **Lost time injury rate for contractors at 0.39 per million working hours**

BASF PETRONAS Chemicals strives to provide a safe and healthy workplace, and ensures that safety, health and environmental issues are incorporated into planning and operation.

In 2017, the lost time injury rate for employees and leased personnel was 0.47 per million working hours, a reduction compared to the previous year (2016: 1.1).

In 2017, the lost time injury rate for contractors was 0.39 per million working hours, higher than the previous year (2016: 0). To address this, an emphasis on the importance of health, safety and environment is reiterated during contractor safety induction sessions. Another measure includes daily monitoring at the work site, with coaching by the Safety Officer and Site Safety Supervisor.

In 2017, BASF PETRONAS Chemicals rolled out a revised Permit to Work (PTW), in order to comply with the format used by BASF worldwide. The revised PTW features include: easy-to-read A3 size; the "four-eyes" principle for verification of Hazard Assessment; a signature by an accountable person on pre-work safety measures; and a mandatory on-site safety briefing by the Permit Issuer and Permit Receiver. Several hundred employees and contractors were trained to use the new PTW forms. The new PTW forms were officially implemented starting from September 18, 2017.

**Lost time injury rate - BASF and leased employees**  
(per million working hours)

<b>2017</b>	<b>0.47</b>	<div style="width: 10%;"></div>
2016	1.1	<div style="width: 30%;"></div>
2015	1.3	<div style="width: 35%;"></div>

**Lost time injury rate - contractors**  
(per million working hours)

<b>2017</b>	<b>0.39</b>	<div style="width: 10%;"></div>
2016	0.0	<div style="width: 0%;"></div>
2015	0.0	<div style="width: 0%;"></div>

## Social engagement

Through social engagement, we aim to contribute to the United Nations Sustainable Development Goals through two approaches: Corporate Citizenship and Starting Ventures. Through our not-for-profit projects, we improve the quality of life of the communities around our sites and worldwide. We also initiate business-oriented projects to improve the quality of life of low-income consumers and value chain partners in developing and emerging countries.

### Corporate citizenship

#### ■ Annual collaboration reflects Verbund approach

In 2017, we collaborated with neighboring companies and associations in the Gebeng Industrial Area in the annual Balok River Adoption Program (BRAP) and an annual program with Malaysian Nature Society (MNS) of Pahang State, as well as hosting site visits for students and authorities.

This collaboration reflects the Verbund approach in our community work, where we combine the know-how and contacts of external organizations with our own resources to maximize our outreach.

Activities and initiatives in 2017 included the Responsible Care campaign, a fishing competition with BRAP, mangrove planting and a riverbank clean-up activity with MNS, as well as the first ever free market activity and “Green the Coastline” event held in Kuantan.



A top angler with Director of Department of Environment of Pahang, at the BRAP Fishing Competition

### Employee volunteering

- #20Mangroves coastal restoration
- Green the Coastline and Free Market event

We organize volunteering activities to help promote employee involvement and opportunities for them to learn about sustainability through our business. In June 2017, around 120 volunteers, including employees and their families, cooperated with the MNS and community residents in a mangrove planting and riverbank clean-up activity. 2017 mangrove saplings were planted at the event, entitled #20Mangroves, which was held in conjunction with the company's 20th anniversary and World Environment Day.

We also held our first Free Market, offering items such as household goods, clothing and electronics free of charge to visitors including underprivileged families in the three villages surrounding our site. More than 100 underprivileged families benefited from this initiative.

Volunteers, including employees from BASF PETRONAS Chemicals, BASF Malaysia and BASF Shared Services Center, together with Mercy Malaysia and MNS, participated in the 2017 Green the Coastline and Free Market event.



Staff and volunteers during the #20Mangroves planting activity and river bank cleanup



Staff and volunteers at the 2017 Green the Coastline and Free Market event in Kuantan, Pahang

## Further information

### Contact

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