



NATPET

Communication on Progress

2018-19

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National Petrochemical Industrial Co.

Driving Sustainability Together



NATPET

Communication on Progress
SUSTAINABILITY REPORT
2018-19



ABOUT THIS REPORT

At National Petrochemical Industrial Company (NATPET) we are aiming to show our commitment to sustainability by revealing our efforts in the three sustainability pillars, in protecting the environment, improving the society and achieving the economical profit.

MESSAGE FROM THE MANAGING DIRECTOR AND CEO

- The way we look at responsibility and sustainability stems from an inner belief in our obligation to society, we believe that corporate entity should give back to society. Businesses are all a part of society, so we at NATPET feel an obligation and a responsibility to make things better for everyone. By acting on that, we are simply showing gratitude to the society we are living in.



Engineer Khalid Ibrahim Zagzoog
Managing Director/CEO

Management Commitment

UNGC Declaration



National Petrochemical Industrial Co.
Joint Stock Company
C.R. 4030126641
J.C.C. 71335
Authorized Capital 1,070,000,000 S.R.

October 27, 2019

H.E. António Guterres
Secretary-General
United Nations
New York, NY 10017
USA.

Dear Secretary-General,

I am pleased to confirm that National Petrochemical Industrial Company – NATPET supports the ten principles of the Global Compact on human rights, labour, environment and anti-corruption. With this communication, we express our intent to implement those principles. We are committed to making the Global Compact and its principles part of the strategy, culture and day-to-day operations of our company, and to engaging in collaborative projects which advance the broader development goals of the United Nations, particularly the Millennium Development Goals. *National Petrochemical Industrial Company* will make a clear statement of this commitment to our stakeholders and the general public.

We recognize that a key requirement for participation in the Global Compact is the annual submission of a Communication on Progress (COP) that describes our company's efforts to implement the ten principles. We support public accountability and transparency, and therefore commit to report on progress within *one year* of joining the Global Compact, and annually thereafter according to the Global Compact COP policy. This includes:

- A statement signed by the chief executive expressing continued support for the Global Compact and renewing our ongoing commitment to the initiative and its principles. This is *separate* from our initial letter of commitment to join the Global Compact.
- A description of practical actions (i.e., disclosure of any relevant policies, procedures, activities) that the company has taken (or plans to undertake) to implement the Global Compact principles in each of the four issue areas (human rights, labour, environment, anti-corruption).
- A measurement of outcomes (i.e., the degree to which targets/performance indicators were met, or other qualitative or quantitative measurements of results).

Sincerely yours,


Khalid I. Zagzoog
Managing Director & CEO



Tel: +966 2 604 8600 Fax: +966 2 652 9380 P.O. Box 4459, Jeddah 21491 Saudi Arabia



QEHSS & Responsible Care Policy

NATIONAL PETROCHEMICAL INDUSTRIAL COMPANY




Quality, Environment, Health, Safety, Security (QEHSS) and Responsible care (RC-14001) Policy

At National Petrochemical Industrial Company (NATPET), responsible care, quality, health, safety, security of employee and protection of environment is the prime concern, therefore, NATPET management and employees are committed to perform their duties in safe, secure and healthy manners through risk management, and preventing accident, work related hazards and TQM as a way of business. As a Responsible company employee development, implementing the best practices prevailing in the industry by participation of management, employees and contractors are the main objectives of NATPET QEHSS Programs.

Through a program of continual improvement, NATPET is committed to:

- Comply fully with all relevant QEHSS & Responsible Care standards, guidance and codes of practices, laws and regulations as well as take any additional measures considered necessary,
- Provide and maintain quality, safe work environment, equipment, systems of work and work facilities to prevent industrial risk and its adverse impact on the environment,
- Manage process safety by ensuring that controls are both functional and effective at preventing and mitigating the impacts of high consequence, low probability process safety events,
- Creating an environment of teamwork and providing QEHSS information, instructions, training and supervision for employees to enable them to carry out their tasks competently and safely,
- Conserve natural resources by their responsible and efficient use in all our operations,
- Investigate any incidents that occurs, implement corrective actions and share the lesson learned with all employees, contractors and other interested parties.
- Line management must be aware and take responsibility for security aspects including cyber security and adherence to company's security regulation is obligatory to all employees,
- Ensure safe transportation, storage and use of chemicals/substances to preserve the health, safety, security and the environment of site and its neighborhood,
- Promote openness with the stockholders for their shared responsibility,
- Periodically review compliances to verify the relevance and any revisions required for further improvement,
- Strive to be amongst the leaders in the field of sustainable development and management of Responsible Care programs.

This policy has been endorsed by the Managing Director/CEO of NATPET, who takes prime responsibility for allocating sufficient resources to ensure its objectives are achieved and Responsible Care requirements are met and available to public and other interested parties.


Khalid Ibrahim Zagzoog
Managing Director/CEO

Dated: 14th May 2019
Document: QEHSS-01, Issue: 3



Vision and Mission

Vision

- NATPET aims to be one of the major global players in the production and selling of top quality Polypropylene and polypropylene derivatives.

Mission

- NATPET strives to become a company of preferred choice in relation to its customers, employees, suppliers, society and stakeholders.

NATIONAL PETROCHEMICAL INDUSTRIAL COMPANY

NATPET

Business Objectives - 2018

Perspective	Strategic Goals
Financial	<ol style="list-style-type: none"> 1. Maximize profit by securing high netbacks. 2. Managing cost with high efficiency and productivity. 3. Maintain a healthy balance sheet and cash flow. 4. Meeting the company's financial obligations.
Customer	<p>To meet and exceed customer's expectations through:</p> <ol style="list-style-type: none"> 1. On time delivery of quality products. 2. Introducing premium products and markets. 3. Improving reliable customer services by effective technical feedback, efficient logistics, prompt communications and continuous after sales support.
Learning and Growth	<ol style="list-style-type: none"> 1. Attract and retain best employees by creating a performance-focused culture and develop multi-skilled workforce. 2. Engagement and development of young talents through continuous feedback and support.
Process	<ol style="list-style-type: none"> 1. Improving core business processes through process innovation.

Jamal J. Malalkah
President & COO

Dated: 1st January 2018

NATIONAL PETROCHEMICAL INDUSTRIAL COMPANY

NATPET

Strategic Goals - 2018

Perspective	Goals
✓ Financial	<ul style="list-style-type: none"> • Maximize sales in the highest netback in markets & applications (zones).
✓ Production	<ul style="list-style-type: none"> • Maximize production by efficient asset utilization. • Optimize grade and/or product mix.
Learning and Growth	<ul style="list-style-type: none"> • Create succession management and development program.
✓ Process	<ul style="list-style-type: none"> • Optimizing resources and processes. • Grow business portfolio.

Khalid Zagzoog
Managing Director

Dated: 1st January 2018

NATIONAL PETROCHEMICAL INDUSTRIAL COMPANY

NATPET

O&M Objectives - 2018

Perspective	Strategic Goals
Financial	Effective operating cost management. Maintain high efficiency margin. Apply operation and margin economic module.
Production	Produce high quality products, sustain plant integrity, reliability by ensuring management commitment to health, safety, environment
Learning and Growth	Continue creating performance-focused culture by engagement, empowerment and multi-skilled development in line with HRO.
Process	Continue plant operation and maintenance excellence program.

Matouq Jannah
MO O&M

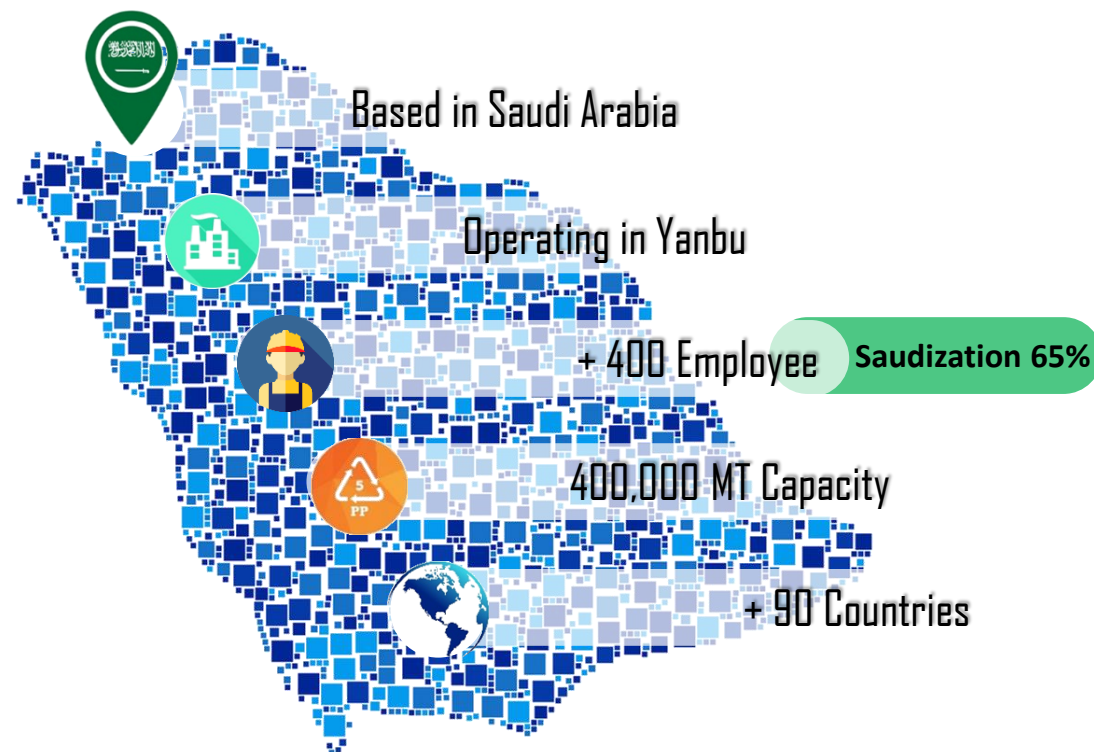
Dated: 1st January 2018

Communication on Progress - COP 2018-19

NATPET At A Glance

National Petrochemical Industrial Co. *NATPET* is a producer of 400,000 MT/ year propylene / polypropylene plant located at city of Yanbu on the west coast of Saudi Arabia. This Plant produces a wide range of polypropylene grades mix of (Homo-polymer & Copolymers) to serve diversified market segments, such as, rigid and flexible packaging, fiber, raffia, consumer goods, automotive, electrical appliances, medical, civil, infrastructure & many other applications.

STATISTICS ABOUT NATPET



TQM/Sustainability Achievement



Major Stakeholders



المؤسسة العامة للتأمينات الاجتماعية
General Organization for Social Insurance



lyondellbasell Polypropylene Technology Licensor - Spheripol Process

2005

Building NATPET plant in Yanbu Industrial City

2008

Trial production has been started
All relevant International Certifications

2010

First commercial production of Teldene products
REACH Registration

2013

First lot has been received by Bonar – NATPET JV
RC 14001 RCMS

2014

NATPET Stood 1st Position in King Khalid Award
CSR Arabia and other international awards



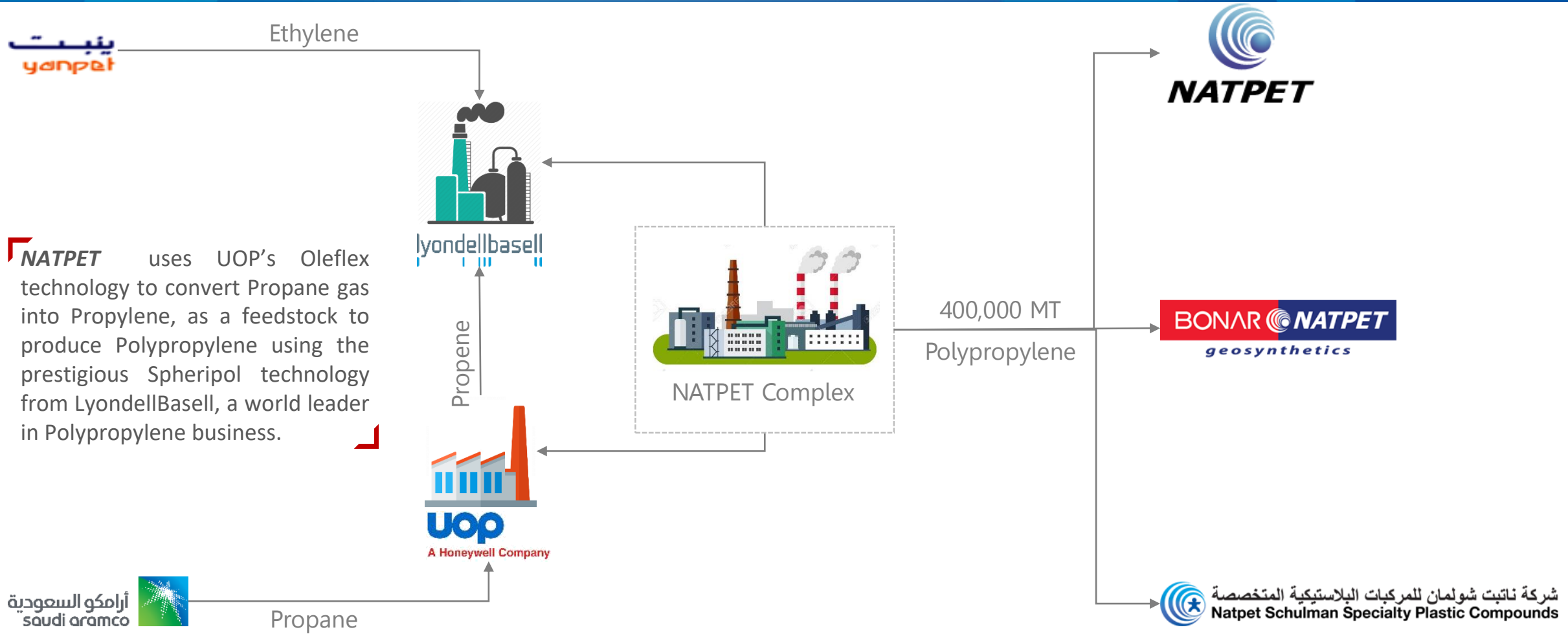
جائزة الملك خالد
King Khalid Award
بناء الإنسان - تنمية المجتمع

2017

Introducing NATPET Schulman Specialty Plastic Compounds
Upgradation of all International Certification on revised standard



Technology & Feedstock



NATPET uses UOP's Oleflex technology to convert Propane gas into Propylene, as a feedstock to produce Polypropylene using the prestigious Spheripol technology from LyondellBasell, a world leader in Polypropylene business.



Joint Ventures

Bonar - NATPET



NATPET has entered into a joint venture with a British company Low & Bonar to produce polypropylene geotextile products. The Bonar NATPET joint venture produces high quality PP Fibers and PP Geotextile products for the fast-growing civil engineering and infrastructure projects in the MENA region.



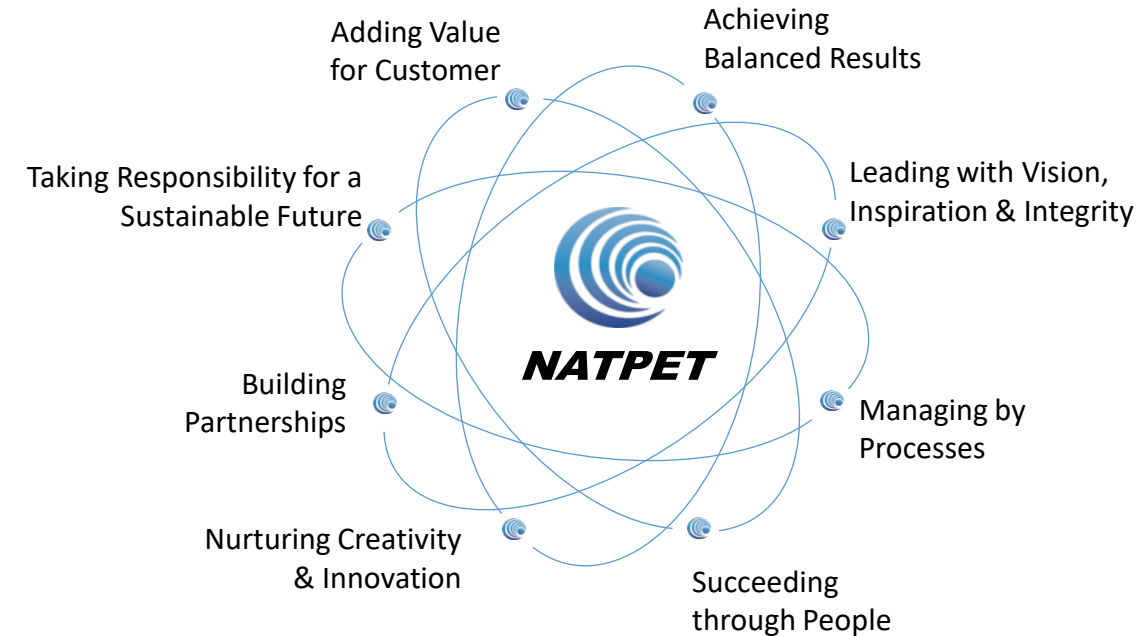
NATPET Schulman Specialty Plastic Compounds

NATPET-Schulman Specialty Plastic Compounds (NSSPC) is the second joint venture, cost-effective and state-of-the-art manufacturing facility to produce and globally sell specialty polypropylene compounds for durable goods & automotive industry.



NATPET TQM -Management Systems

- TQM processes are aligned with EFQM & “KKA RC Award 6 Core Areas”
- Objectives are set, cascaded down the level, KPIs are defined and monitored through Balance Score Card
- NATPET Management System is managed through strategically aligned processes using fact-based decision making to create balanced and sustained results.
 - In total we have more than 850 documented procedures.
- NATPET Identity Guidelines Manual (in practice)
 - To maintain our standards and ensure that all communications will follow one protocol in line with NATPET corporate image
- NATPET Level of Authority (in practice)
 - To ensure the efficient operation of NATPET by implementing proper controls through the appropriate approvals and delegation of authority required for various transactions and activities



Commitment to Good Governance

NATPET Sustainability Programs

NATPET UNGC Declaration

NATPET submitting Communication on Progress COP since 2014.

GRI Reporting Sustainability, Key Stakeholder & Material Issue

International Certifications

1. ISO 14001:2015 Environment Management System
2. ISO 9001:2015 Quality Management System:
3. RC 14001:2015 Responsible Care – Environment, Health, Safety, Security Management System
4. OHSAS 18001:2007 Health & Safety Management System
5. ISO 17025:2005 Laboratory Accreditation Certificate
6. ISO 22000:2018 Food Safety Management System
7. ISO 27001:2013 Information Security Management System*
8. ISO 22301:2012 Business Continuity Management System*
9. ISO 50001:2011 Energy Management System*
10. *Certification expected by Oct-Nov 2019



Core Area 1

Building a Nationally Competitive Workforce

HR Mission Statement

- We strive to recognize and support the staff and community by being sensitive and culturally aware. We also strive to balance competence in the technical aspects of our work with sensitivity to the individual needs and situations of staff, keeping the bigger picture in mind as we administer the details.

Equal Opportunities Policy

- NATPET is committed to provide equal opportunities and to avoid unlawful discrimination in employment. Striving to ensure that the work environment is free of harassment and bullying and that everyone is treated with dignity and respect, which is an important aspect of ensuring equal opportunities in employment.
- Clarifications:
- It is unlawful to discriminate directly or indirectly in recruitment or employment because of age, disability, sex, pregnancy, maternity, race, religion or belief.

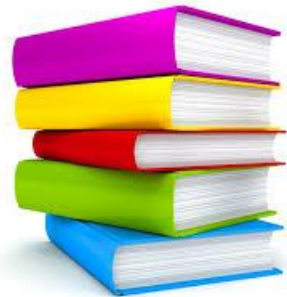
NATPET Employees Benefit

- The company provides all benefits as mentioned in labor law in addition to that NATPET provide:
- Life insurance 36 Monthly basic salary
- Bonuses,
- Merit salary increase,
- Education Allowance,
- Full medical coverage,
- Special Leaves (Hajj, Maternity, Paternity, Marriage, Etc.) according to Labor law.
- Housing and Transportation allowance
 - (Minimum 18,000 for bachelor and 25,000 for married or 3 basic which ever higher),
- Examination Leave, Emergency Leave,
- Business Trip and per-diem, Compensatory time off (Thursday), Social Gathering,
- Ramadan Gift, Performance award, Training courses in-house & external
- Recreation Club Membership
- Al-Nakheel Holiday Program



Human Resource Documents

- Organization Structure Manual:
- Compensation & Benefit Manual:
- Salary & Administration Manual:
- PMS & carrier Development Manual:
- HR policy Manual:
- Recruitment & Selection Manual:



- Human resource is providing ESS services through out the organization to fulfill the level of employee satisfaction.
- Employee Suggestion Scheme Innovation



natpet_logo.png

Employee Self
Service (ESS) for
Employees

Performance Management System (PMS)

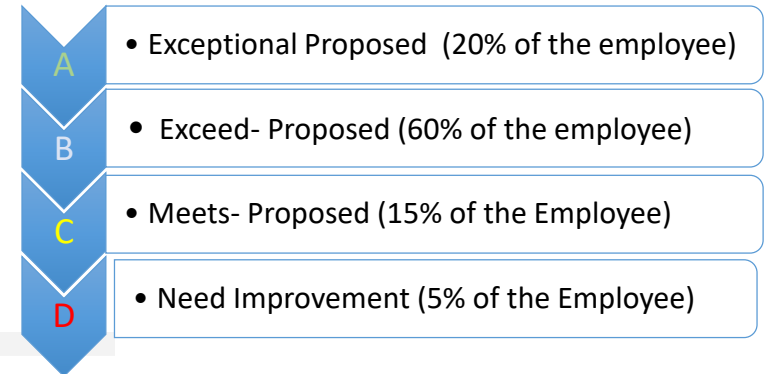
- The Performance Management System (PMS) has been implemented using SAP (Success Factors).
- Establishing company-wide objectives and cascading down the level by using Balance Score Card
- Performance management system works based on the Balance Score card which include:

- Safety
- Financial
- Customer
- Training & Development
- Internal Process

Bonus Distribution Plan - Sample

Out Standing	(A)	20% (95%-100%)	- 3 -3.5B
Exceeding Expectations	(B)	60% (84% - 94%)	2 - 3 B
Meeting Expectation	(C)	15% (75%- 83%)	1- 1.5 B
Not Meeting Expectation	(D)	05% (65% - 74%)	0.5B
Unsatisfactory		Less than 64%	0

Ranking Categories



Unsatisfactory 5% of the Employee

GoalStatus:Appraisal

Introduction
Use this worksheet to add or update goals. To quickly add a new goal, click the "Add Goal" button, or browse the hierarchy section to find an existing goal to add to your plan.
Goal Status is showing the Goal Plan state. It can be "Setting by Employee", "Setting by Manager", "Approved" and "Appraisal". The sum of weights of all goals must not exceed 100. The weight of each goal must be between 5 to 50.
There are 4 Goal Categories to add goals to. Apart from cascaded goals from the leadership, you may add goals by filling all fields or choose a goal from Success Factors Goal Library and modify it, or using the SMART Goal Wizard.

Displaying 1-4 of 4 Goals

Total Weight: 100.0%
(Min:1, Max:20)

Financial

#	Goal Name	Weight	Start Date	Due Date	Completion	Status	KPI	Sub Category	Action
1.1	Assisting in timely submission of error free payroll Edit	25.0%	01/01/2017	31/12/2017	0.0%	In Progress	no off errors		

Alert - Linked by Hasan Abdullah Al Shaikhi 16/10/17 14:19 [clear alert](#)

Monitoring Employee Satisfaction

FOCUS AREA – INTERNAL SURVEY:

- A – General
- B – Management
- C - Your Job
- D - Training and Development
- E – Benefits
- F - Working Conditions
- G - Communication

	61 to 80%	41 to 60%	Total
A.3 - Are you fully aware of your job requirements?	32%	12%	44%
	Neutral	Dissatisfied	Total
A.4 - Does the related approved procedure present the true picture of your function?	28%	8%	36%
	Neutral	Dissatisfied	Total
A.5 - What is your overall satisfaction with Marketing and Sales Department?	12%	8%	20%

On a five-point scale, where 5 means strongly agree and 1 means strongly disagree, please rate your level of agreement with the following items

	1	2	3	4	5
1. I know what is expected of me at work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
2. I have the materials and equipment I need to do my work right.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
3. At work, I have the opportunity to do what I do best every day.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
4. In the last seven days, I have received recognition or praise for doing good work.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
5. My supervisor, or someone at work, seems to care about me as a person.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
6. There is someone at work who encourages my development	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
7. At work, my opinions seem to count	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
8. The mission or purpose of my company makes me feel my job is important	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

NATPET - A Young Talent Organization



Young workforce are more technological oriented & lead the digital revolution”

Jamal J. Malaikah
(President & COO)

- NATPET President & COO has initiated a daring program to develop the NATPET Human Capital representing 74% of the total national workforce age (18-35) years.
- The Young Talent Program mainly focuses on developing young nationals for tomorrow to lead the company.
- NATPET president is the Chairman of the NATPET Young Talent Committee and supervise all developments.
- Various training programs have been identified and in process of execution including Lean yellow, green and black belt Six Sigma.

Understanding NATPET Human Capital

Population/Age	67+	48-66	36-47	18-35
All	5	74	124	263
Saudi	1	20	55	217
Expat	4	54	69	46
Total Population				466
Saudization %age	62.88%			
All	1.07%	15.88%	26.60%	56.43%
Saudi	0.34%	6.83%	18.77 %	74.06%
Expat	2.32%	31.22%	39.88%	26.58%


Promoting Equality (female employment)

Name	Position
Hanadi Oskoubi	SR. Accountant Receivable
Sarah Azhar	Accountant
Maha Matrafi	Sr. Accountant
Heba Tarbulsi	HR Specialist
Sirin Yakar	Marketing Coordinator
Hanan Hitham	Admin Service Coordinator
Razan Zawawi	TQM coordinator
Ranya Al Madani	Employer Branding Manager
Ola Amin	Assist Manager System Integration Solutions
Lina Tabbarah	Training Consultant
Alia Al Toukhi	Senior Talent Officer
Bushra Hamidaddin	Talent Management Officer



Code of Conducts

- Deal with others in a sincere and honest manner and observe the highest ethical practices and principles in conducting the business affairs of the Company.
- Observe principles of good behaviour and abstain from any acts that may adversely affect the reputation of the Company.
- Devote time and effort in the workplace to the performance of work and not towards wasting the time of others.
- Cooperate with colleagues in a manner which promotes the efficient conduct of Company business.
- Be attentive to general personal appearance to reflect favourably on your affiliation with the Company.
- Always behave for the best interest of the Company in all business relations including relations with customers, governmental authorities, your supervisors and colleagues.
- Understand and act on the basis that all employees share the responsibility for supporting and adhering to the Company's objectives related to internal administrative and financial control.
- Do not participate, as either a paid or unpaid party, in any media related activity, e.g., speeches, publications, except with the written permission from an authorized Company official.
- Do not accept any gifts or benefits from external or internal parties, whether such gifts or benefits are for you or for any member of your family, if such acceptance may influence or interfere with your decision or performance of your duties at the Company in favour of such parties.
- Under no circumstances, offer or try to offer any bribe or other financial inducement to a prospective customer so as to promote the Company's products or services or with a view to affect such customer's decision in one way or another.
- Do not accept any bribe or inducement, of whatever type or achieve any purpose, such of a contract or purchase a prospective vendor or supplier, or giving information to such vendor or supplier. If a bribe or any other inducement is offered to you, promptly report same to your superior.
- Do not utilize functional authority for personal gain.

	Human Resource	Document: HR / HRP / 1.1
	Policy	Issue No. : 01
		Issue Date : 01.06.2008
		Rev. No. : 0.2
	Rev. Date : 01.06.2008	Page # : 18 of 43




CODE OF CONDUCT

1. Basic Policy
It is vital that employees understand the Code of conduct for which they are to be held accountable and that they know the consequences of breaches in their conduct.

2. Responsibilities
All employees, without exception, are expected to know the Company's Code of Conduct and to behave accordingly.

3. Code of Conduct

- Deal with others in a sincere and honest manner and observe the highest ethical practices and principles in conducting the business affairs of the Company.
- Observe principles of good behavior and abstain from any acts that may adversely affect the reputation of the Company.
- Devote time and effort in the workplace to the performance of work and not towards wasting the time of others.
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- Under no circumstances, offer or try to offer any bribe or other financial inducement to a prospective customer so as to promote the Company's products or services or with a view to affect such customer's decision in one way or another.
- Do not accept any bribe or inducement, of whatever type or achieve any purpose, such of a contract or purchase a prospective vendor or supplier, or giving

Created by TQM	Prepared by	Reviewed by	Approved by
Name :	Hasan Al Shamrani	Tariq Mirza	Jamal J. Malakiah
Designation :	HR-Manager	VP, Corporate Affair	President & COO
Signature :			



Whistleblowing Policy

- Introduction:
 - This policy applies to all employees of the NATPET, other individuals performing functions in relation to the NATPET, such as service providers and contractors, are encouraged to use it.
 - It is important to the business that any fraud, misconduct or wrongdoing by staff of the NATPET is reported and properly dealt with. The NATPET therefore encourages all individuals to raise any concerns that they may have about the conduct of others in the business or the way in which the business is run. This policy sets out the way in which individuals may raise any concerns that they have and how those concerns will be dealt with.
- Summary:
- The NATPET provides protection for workers who raise legitimate concerns about specified matters. These are called "qualifying disclosures". A qualifying disclosure is one made in the public interest by a worker who has a reasonable belief that:
 - a criminal offence;
 - a miscarriage of justice;
 - an act creating risk to health and safety;
 - an act causing damage to the environment;
 - a breach of any other legal obligation; or
 - concealment of any of the above is being, has been, or is likely to be, committed.
- It is not necessary for the worker to have proof that such an act is being, has been, or is likely to be, committed - a reasonable belief is sufficient. The worker has no responsibility for investigating the matter - it is the NATPET's responsibility to ensure that an investigation takes place.
- A worker who makes such a protected disclosure has the right not to be dismissed, subjected to any other detriment, or victimised, because he/she has made a disclosure.
- The NATPET encourages workers to raise their concerns under this procedure in the first instance. If a worker is not sure whether or not to raise a concern, he/she should discuss the issue with his/her line manager or the HR department.

Training and Career Development

Vision

To equip NATPET employees with the best training to meet Company Targets/Goals.

Impact of Training on NATPET Economic Performance

- NATPET invests in skills to prepare economies and labor markets for the demand and changes of increased global competition.
- NATPET also offers training opportunities and create learning potential and became learning organization in which workers have the opportunity to develop professional and social competences through peer learning.
- Investments in training have a positive and significant impact on NATPET economic performance indicators.

Mission

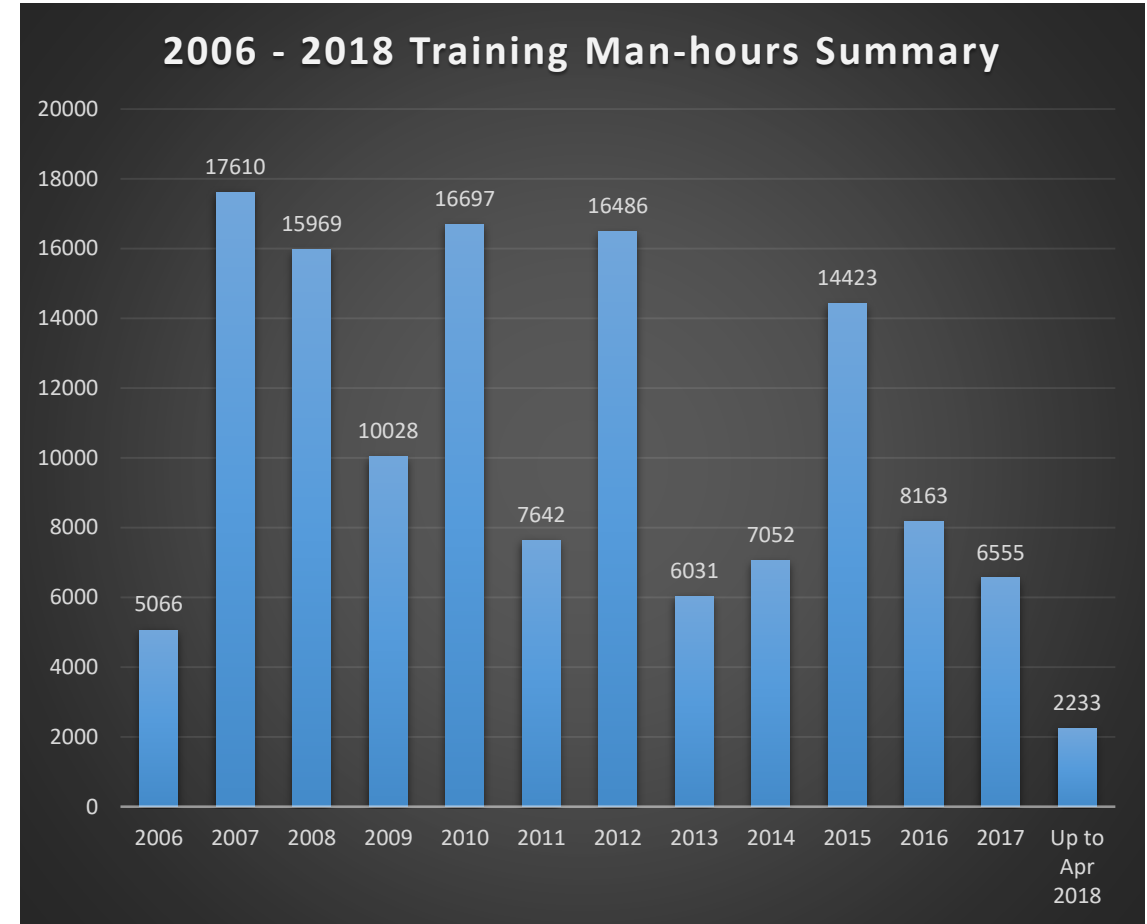
To help NATPET employee be the best among the leading competitors in Petrochemicals industries.

Benefit in investing Training

- Enhancing employees competencies
- Increase and Improve:
 - Quality of People
 - Quality of Products
 - Productivity: Achieved Targeted Plans
 - Cost: Eliminate/Reduce Equipment Failure and Downtime
 - Material Flow: Eliminate Spare parts Shortage/Over Stocking
 - Safety: Safe Working Environment, Procedures and Process
 - Man Power: Control Turnover/Successful Succession Plan

Training and Career Development

- Training Programs For Continuous Development
 - Management & Behavior Training (Soft Skill)
 - Technical Training
 - Academic Training (College Sponsorship , Co-Op / summer training for undergraduate students , Internship)
 - PDPs and OJTs training
 - Safety Training (HSE & Fire Department)
- Coop/ Summer Training (Program Brief)
 - This program is developed as part of to support Universities and Colleges students to get real work life experience:
 - Average capacity of acceptance to the program 20 students.
 - Assigned as per their qualification to the different department
 - Working and treatment as employee (punctuality, attitude , assignments)
 - End of program evolution.



Maintaining & Continual Improvement of NATPET Integrated Management system Systems (IMS)

- Gulf Sustainability Quality Assessment System – GPCA

- Saudi Bulk Transport – SBT
- SA Talke
- Almajdouie & De Rijke Limited Co – MdR
 - Developed for Gulf SQAS.

- Participation in Customer satisfaction programs

- Regular Internal System Audit on established IMS with the help of internally trained TQM – Coordinators.

- King Khalid Award Ambassador Program to develop local vendors & suppliers



Dear.....

The King Khalid Foundation and Ambassador are pleased to invite your company to participate in the 2019 King Khalid Sustainability Award.

With a legacy of eleven years and over 550 participants, the Award is the first and leading sustainability recognition in the Kingdom that focuses on enabling, developing and applying sustainability in business.

The Award is supported by a comprehensive, robust and proprietary company performance assessment methodology that is designed to differentiate sustainability leaders from their peers. The Award can enable your company to optimize its sustainability strategies and ESG practices, in line with global and national sustainability best practices and mandates.

The Award process culminates with the annual King Khalid Awards Gala, where winning companies are recognized for their excellence by The Custodian of the Two Holy Mosques King Salman bin Abdulaziz.

For more information, visit the [King Khalid Award](#) website. The application will remain open until 14th April, 2019.

السادة

يسر مؤسسة الملك خالد وسفير جائزة الاستدامة شركة دعوة متشكركم للمشاركة في "جائزة الملك خالد للاستدامة" للعام الجاري 2019، حيث تعتبر الجائزة من أهم المنابر الوطنية للتوعية بخلق وتشغيلها فإن أحد عشر عاماً ، ، وتعتبر الجائزة الأولى والرائدة في المملكة التي تركز على تمكين وتطوير وتشجيع الاستدامة في مجال الأعمال التجارية، وشركه فيها ما يزيد عن 550 مشاركاً.

الجائزة تعتمد على منهجية شاملة يومية لتقييم أداء المنشآت ، حيث تم تصميمها للتفريق بين رواد الاستدامة من أقرانهم الآخرين ، الجائزة تساهم في تمكين متشكركم على تحسين استراتيجيات الاستدامة بما في ذلك ممارساتها البيئية، الاجتماعية والحوكمة ، وتلك متماشية مع أفضل المعايير العالمية والوطنية ذات الصلة بالاستدامة. سيتم تكريم الفائزين بالجائزة في "الحفل الختامي للجائزة" والذي يبرعاه خادم الحرمين الشريفين الملك سلمان بن عبد العزيز حفظه الله .

للمزيد على مزيد من المعلومات، قم بزيارة موقع جائزة الملك خالد الإلكتروني. استكمال طلبات التسجيل لازل مفتوحاً حتى تاريخ 14 أبريل 2019

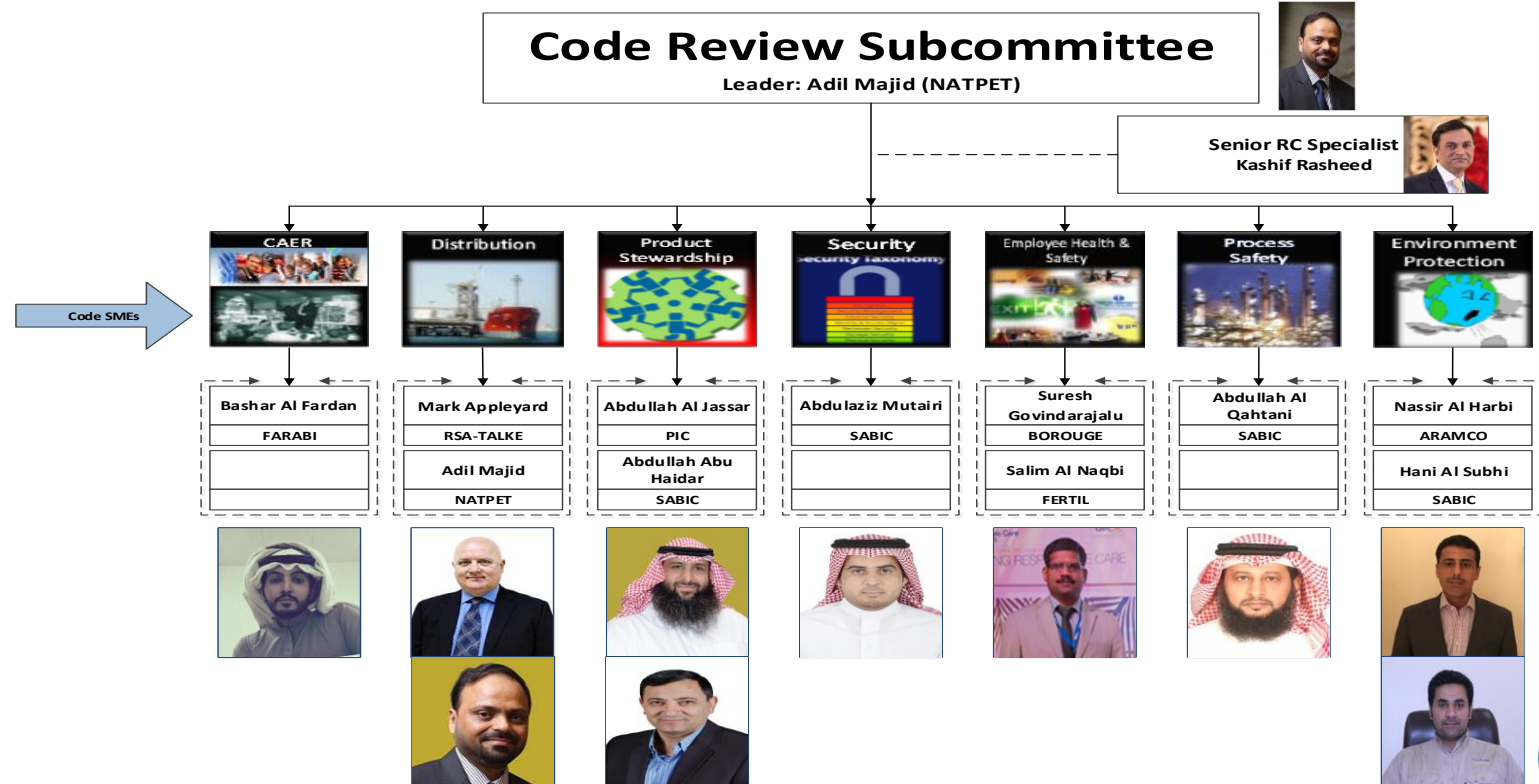


Commitment on Responsible Care

Responsible Care® is an ethic by which the global chemical industry has pledged to conduct its business. Responsible Care® is a worldwide performance improvement initiative based around agreed-upon features

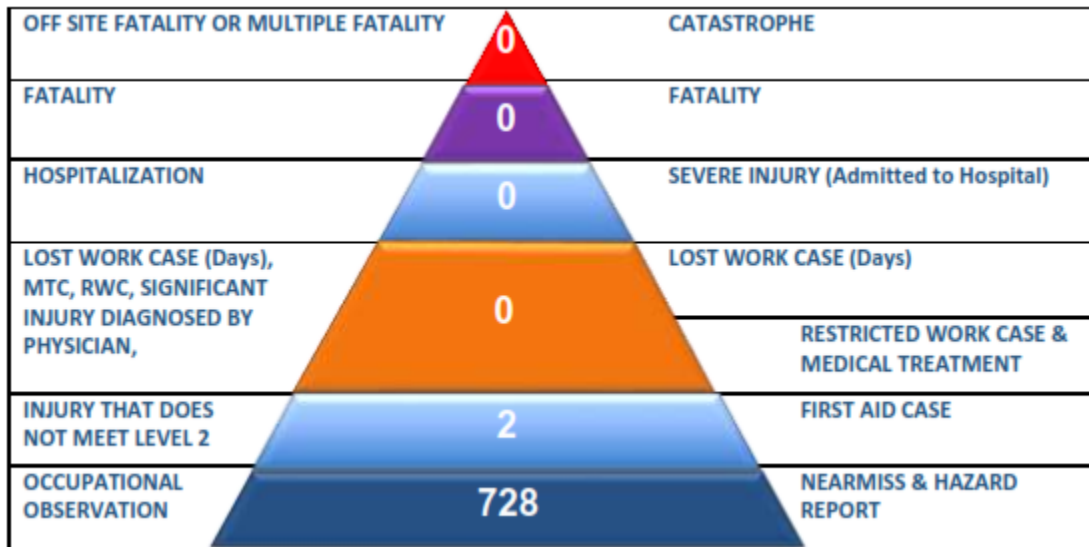
GPCA – Responsible Care Committee
 NATPET – TQM is the team leader for responsible care code committee and revised codes of Practices Jan 2018
 Implemented at NATPET

“Do the right thing and be seen as doing the right thing”



NATPET HSE STATISTICS YTD (Aug'19)

HSE Statistics till August 2019



LOST TIME INCIDENT	0
MEDICAL TREATMENT INCIDENT	0
FIRST AID INCIDENT	2
PROPERTY DAMAGE INCIDENT	0
FIRE INCIDENT (MINOR – CLASS C)	2
ENVIRONMENT SPILLAGES	0
PROCESS SAFETY INCIDENT	0
NEAR MISS AND UNSAFE CONDITIONS REPORTED	728

- 1.79 Million Safe Man-hours worked since last Loss time incident (LTI.)
- 333 Safe Worked Days, since last LTI

Major Milestones

- Safety Achievement - GOLD Award from RosPA
- Industrial Leader Award from National Safety Council, USA
- International Safety Award from British Safety Council, UK
- Perfect Record Award from National Safety Council, USA
- Corporate Hazard Recognition Award from National Safety Council, USA
- Million Hours Award from National Safety Council, USA
- 9.14 Million Safe Man Hours & 1791 Safe Days away from LTI
- Recorded Zero Lost Time Incident and Zero Lost Time Incident Rate (LTIR) in 2017
- Recorded Zero Medical Treatment Case and Zero Total Recordable Incident Rate (TRIR)
- Completed Major Drill in October in coordination with YAMA members companies
- Significant improvement in Near Miss Reporting (2298 reports in 2017)
- Establishing Lessons Learnt & News Letters
- Training of ISD Procedures through E-Quiz
- Help to Quit Smoking habit – an initiative of PDH



Core Area 2

Innovating Solutions for Sustainable Development

Waste Free Environment - WFE

- Waste Free Environment aims to promote recycling and to raise awareness on responsible litter disposal, aims to change people’s attitude and mindsets towards litter disposal and raises the need for communities to respond to environmental issues.
- During the annual NATPET Waste Free Environment campaign, which takes place between February and March, responsible and enthusiastic NATPET volunteers, various organizations, community members and educational bodies, join hands and engage in campaign activities to dedicate their time back to their environment.
- WFE focuses on the 3 R’s: Reduce, reuse and recycle.
- NATPET initiated WFE program since 2014.

Date	Site	Activities
Feb 25th, 2018	Makarem Annakheel Village/ Beach, Jeddah	<ul style="list-style-type: none"> • Beach Clean Up • Park/Community Area Clean Up • Awareness to Schools Children
Item	Number	Comment
Number of People attended	600 Plus	Government officials and public
Number of divers attended	60	In two shifts 09:30 & 11:00
Number of Schools	Three	<ol style="list-style-type: none"> 1 Al FALAH school 2 Prince Bandar bin Abdul-Aziz school 3 Umar Farooq School
Number of Universities	None	
Amount of Waste collected (kg)	806	<ul style="list-style-type: none"> • 437 kg of plastic related waste such as chairs, bottles, fishing ropes, • 215 kg metal waste (cans, steel wires, iron rods etc.) • 154 kg rubber related and other materials
VIPs (Kindly List the Names)	<ol style="list-style-type: none"> 1 H.E. Waleed Suliman Alhejaili - (Director General of General Authority of Meteorology and Environment Protection 2 Mr. Mohammed – King Khalid Award Association 	



Developing Leaders of Tomorrow – LoT

- Leaders of Tomorrow is an initiative launched by GPCA, aims at building the local human capital in the region, bridging the gap between academia and the industry. Leaders of Tomorrow is considered as the first official collective step where industry stakeholders collaborate in shaping skills and preparing the future industry leaders with the required skills set.
- NATPET is an active member in sponsoring students to attend the GPCA yearly conferences. Each conference will cater to the participating students by encompassing an element of the initiative in the form of a seminar, workshop, roundtable and site visit.

Year	# of Students Sponsored	Institutions	No. of Programs
2016	9	KFUPM; KAUST	3
2017	13	KFUPM; KKA; KAUST	5
2018	8 (as on 30 th June)	KFUPM; KKA; KAUST	3



NATPET Partnership with NGOs

- Al Nabta
 - NATPET and Al Nabta Collaboration provides services and products that contribute to **sustainable development**.
 - Educating the younger generation by providing educational kits for schools about the environment.
 - Awareness of the targeted groups by providing courses and workshops on environmental awareness.
 - Supporting initiatives by providing data for those interested in the environment.
 - Interacting with the community.
- Majid Society
- ADVn.Lens



Sharing Expertise

- NATPET plant engineers (Maintenance Division) regularly support Yanbu Industrial college (YIC) in Program Assessment Committee (PAC) for their Senior Design Projects of Mechanical Engineering B.S. students as an external examiner.



NATPET Joint Initiative with Royal Commission

Environmental Awareness at DANA Mall

- NATPET Environment section organized environmental awareness and excellence competition in DANA Mall in collaboration with the local environmental regulatory authority, Royal Commission Environment Control Department at Yanbu and RC primary education department.
- NATPET Participation in Flowers and Plant at RC - Yanbu.



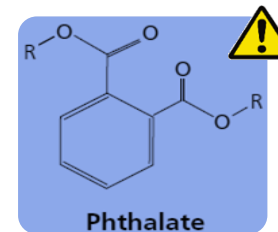
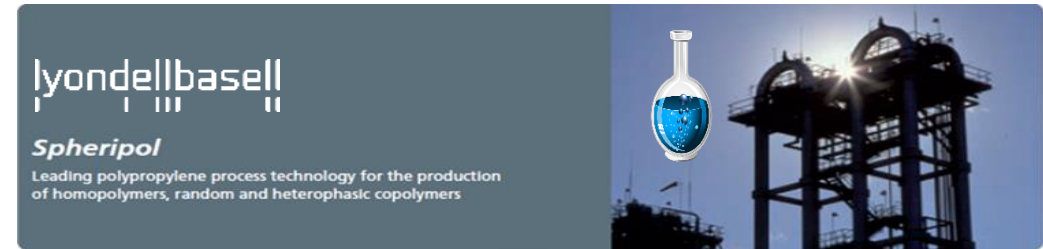
Cleaning of Coastal Area

- NATPET Environment Section initiated beach cleaning campaign & school Children Environmental awareness.
- Room furnishing inside RC Environmental Protection Control Department.
- The theme was “Clean & Green Environment”.

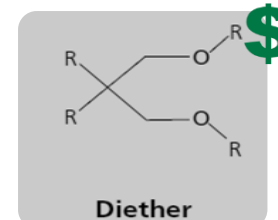


Product, Service and Process Innovation

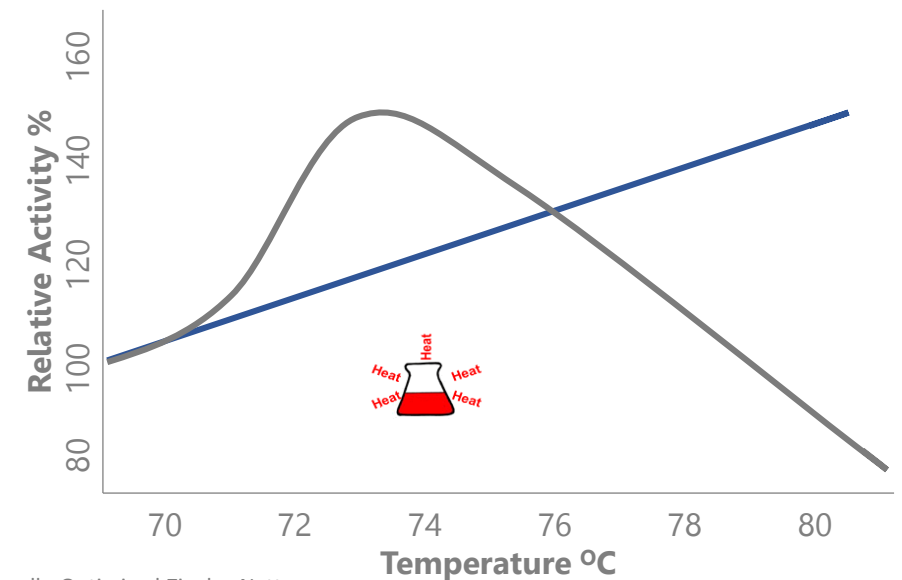
- Optimized Ziegler-Natta Catalyst for PP process
- Diether Donor Catalyst For Better Environment
 - The behavior of a catalyst in a bulk reactor is mainly determined by the internal donor that is used to make the catalyst.
 - Changing to Diether based catalyst was part of NATPET R&D practice even before LYB implementation on their Spheripol plants.
 - The following are some of the result of using Diether catalyst:
 - NATPET is one of the first plants in the world using Phthalate free catalyst even before the license provider.
 - Innovation in fiber process by introducing Phenol free fiber as the first Spheripol plant in the world.
 - Biaxially oriented polypropylene BOPP enhancement due to diether based catalyst.



Phthalate



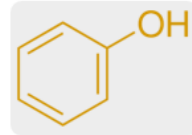
Diether



Source: LyondellBasell - Optimized Ziegler-Natta Catalysts for Bulk PP Processes

Product, Service and Process Innovation

- Phenol Free Fiber



- Phthalate Free
- Phenolic Free A.O.
- Basic UV Stabilizer



Benefits:

- Eliminating yellowing and discoloration issues
- Durability under UV light
- Matching the developed new regulatory compliance
- Slight enhancement in physical properties

- Neumag Remarks

Numag is the worldwide market and technology leader for complete plants

- Neumag asked NATPET to be the reference material in their trials for phenol free products.



Conclusion

During all the trials the new NATPET PP grade showed a good performance and enables to run the processes faster than the guarantee speeds for the S+ machine for these products. With the coarser 10dpf product the only

Product, Service and Process Innovation

Cost & Energy Saving by Stretch Wrap Packaging System



Energy Saving

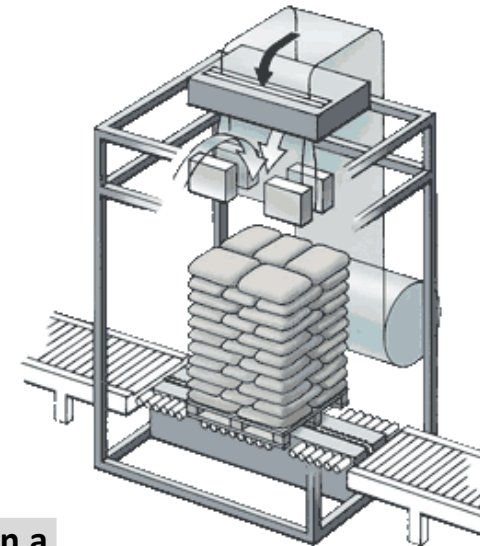


Cost Saving

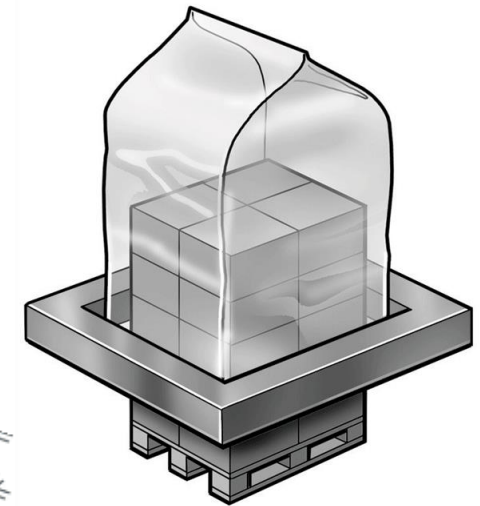


Customer Satisfaction

Stretch Wrap Packaging System



Stretch Wrap



Shrink Hood

6 KW / Pallet Vs < 1 KW / Pallet

Energy Consumption in a year
- Shrink Hood (Kw/year)

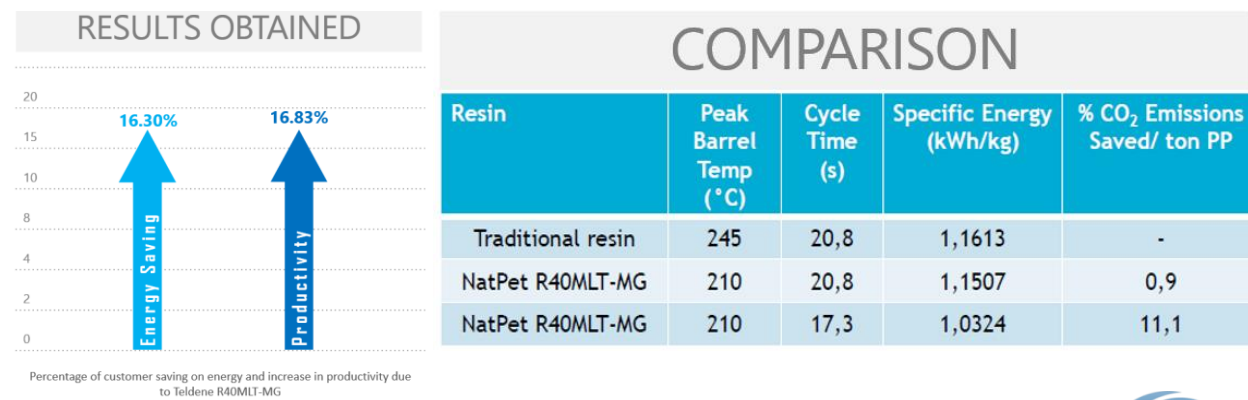
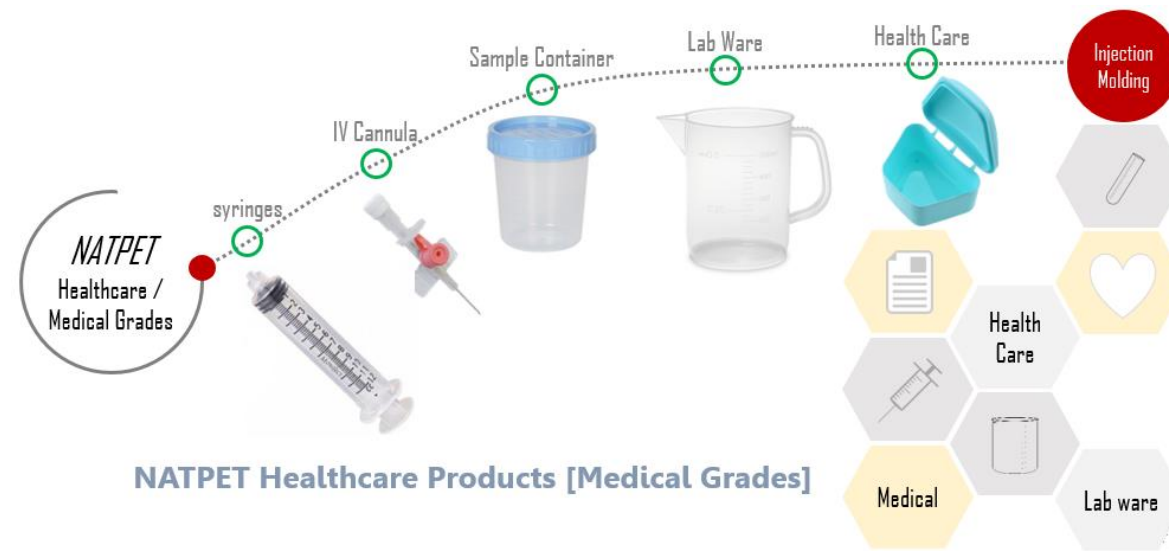
4,976,640.00

Energy Consumption in a year – Stretch Wrap
(Kw/year)

750,000.00

Product, Service and Process Innovation

- NATPET is the first healthcare and medical grade producer in the middle east and Africa.
- Optimization Trial Plan:
 - Run the new resin with the same parameters of old resin
 - Optimize the temperature with the new resin
 - Optimize the cycle time with the new resin
- Evaluation of the trial setting:
 - Energy was measured and recorded for the three above steps
- Al Shifa were able to increase the production capacity from 780 million syringes/year to 904 million syringes/year



Product, Service and Process Innovation

ABC Project

- Serving customer in their technical queries, regulatory compliance, and grade specifications.
- Helps customer to place an order or ask for samples
- Addressing customers' concerns, observations, complains and providing technical support

Multichannel to Omni channel presence

- Facebook Presence
 - Enhance employees solidarity towards the company.
 - Show NATPET's participation in worldwide events.
- LinkedIn Presence
 - Create a direct communication channel with convertors.
 - Increase awareness about plastic recycling and disposal.



VR Project

- Show the production process through VR to Traders/Convertors during Exhibitions.
- Use VR headset for awareness and training sessions for employees.

Tutorial videos for convertors

- Tutorial videos on how to unpack, store and properly use our product.
- This will reduce the number of complaints and queries received.



Sustainable Programs (2016 – 2019)

Operations Excellence philosophy 365 days without plant issue shutdown:

Maximize length of running time in order to combine catalyst & screens replacement during same maintenance activity (each 3 years).

#	PDH	#	PP
1	Hybrid external cooling system for fin fans		Valve type changed from butterfly to gate valve in the
2	Hc		order
3	Co		
4	M		
5	Hy		
6	Ste		
7	Ac		y
8	Fla		
9	Co		
10	Ca		tion
11	Di		
12	Hy		
13	Di		
14	Plant start up time optimization (from 7.7 to 2.4 days)		

This specific part is deliberately removed due to confidentiality issues.

Approx. Total Saving: SAR 31 M



Core Area 3

Empowering Local Suppliers

Responsible Supply Chain Management

- Shorter Procurement Cycle – Encouraging Local Sourcing Purchasing Strategy
- Developing Local Suppliers - as a business partner.
- Zero waiting hours, with competitive prices & quality.
- Developing contractors and sponsoring in various conference SQAS – LSP.
- Suppliers assessment and evaluation are effectively followed.
- NATPET Standard Terms & Conditions include:
 - Article# 12.3 & 12.4 specifically in order to obtain commitments from Suppliers on EHSS & Pollution issues.
 - Article# 12.6 speaks of ‘Social Obligations’.
 - Article# 18 encourages preference of National Products/Resources.

Developing Local Sources

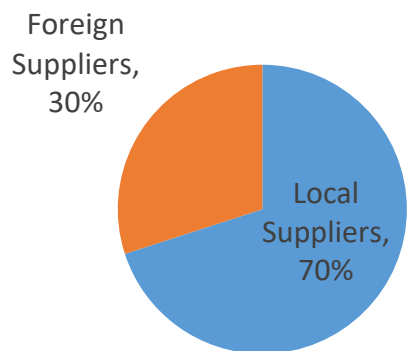
Materials

Materials	# of Suppliers	%age
Local	636	70%
Foreign	270	30%
Total	906	100%

Services

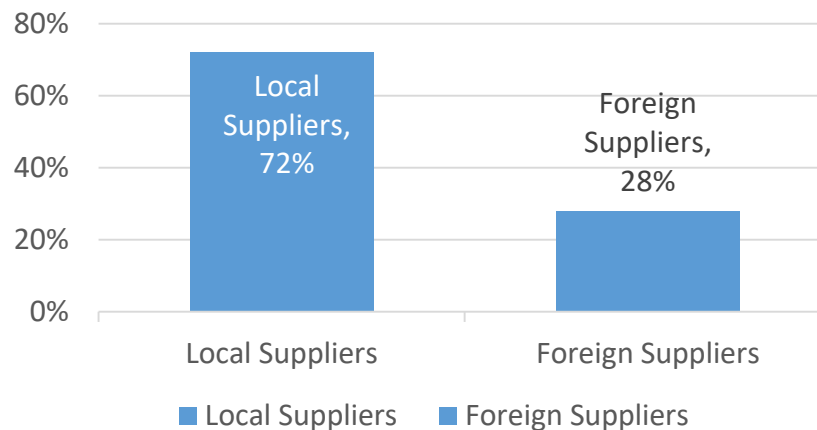
Services	# of Service	%age
Local	289	76%
Foreign	89	24%
Total	378	100%

Materials

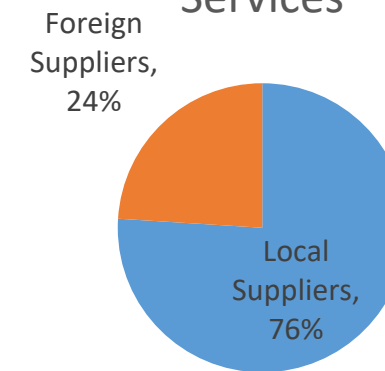


■ Local Suppliers ■ Foreign Suppliers ■

Total Materials & Services



Services



■ Local Suppliers ■ Foreign Suppliers

Responsible Supply Chain

SUPPLIER ASSESSMENT

- Suppliers are assessed, accepted or rejected on definable basis such as:
 - Availability, quality and stability of financial, technical, administration, manpower & material resources.
 - Availability of Materials, Services & Payment Terms.
 - Past experience, reputation, safety awareness and records in addition to competing abilities commercially and technically.
 - Efficiency in attending and resolving work difficulties and problems.
 - Production capacity in terms of quality, quantity, durability and uniformity (if applicable).
 - Technical capabilities and activities for product testing and development researches.
 - Product warehousing requirements (if required).
 - Locations of manufactures, sale offices and maintenance work shops.
 - Availability and capability of facilities for after sale services/support.
 - Shipping and delivery efficiency.

Evaluation Of Supplier Performance

- Good in responses & meeting delivery Schedule.
- The evaluation reports of Contracts Administrators for Supplier's performance during and by contracts closure, which should indicate to the strengths and weaknesses of each Supplier.
- Competitiveness of Suppliers as per quotes/bids received from Suppliers.
- Management and financial capabilities of major Suppliers, as per NATPET review of annual reports received from Suppliers.

Responsible Contract Management

Supplier Engagement & Relationship Management

- Total 15 Local Contractors were evaluated, selected and trained for long-term contract for 2018 – 2020.
- Contractors associated with NATPET
 - 45% Contractors from Yanbu
 - 50% Contractors from KSA
 - 5% Foreign OEM support

Approved Vendors

Open	First Name	Last Name	Company	Job Title	Category	E-mail Address	Business Phone	M
Open	Peter	Glassner	COPERION	Senior Project Manager	Business	peter.glassner@coperion.com	+49 711 897 2499	+49
Open	Khaled	Gobran	DRESSER - RAND	Country Branch Mgr		KGobran@Dresser-Rand.com	+966 (0) 3 860 3545	+96
Open	Andres	Gonzalez	AMCO WEIR	Rotating Equipment Manager	Business	andres.gonzalez@amcoweir.com	03 812 1084 Ext: 301	05 4
Open	Imran	Haidar	Alfa Level Middle East Ltd.	B.E. Mech. Engr.		imran.haidar@alfalaval.com	012 693 6506-107	055
Open	Sami	Hamdan	Siemens	Sales Manager		sami.hamdan@siemens.com	+966 (13) 844-6123	+96
Open	Jaffer	Hamood	Flowserve	Mechanical Eng.		jhamood@flowserve.com	+966-13-857-3150/1828	+96
Open	Mohammed	Hassan	John Crane	West Coast Regional Manager	Business	mohammed.hassan@ohncrane.com	014 325 2000 ext. 101	055
Open	Hylton	Holman	Alderley	service manager	Business	hylton.holman@alderley.com	+966 1 38100262	+96
Open	Daniel	Holz	Ruhrpumpen	Supervisor Commissioning/Maintenance		hoelzel@ruhrpumpen.de	+49 163 661 4642	
Open	Anthony	Johnson	Gates	Product Application Engineering	Business	ptpasupport@gates.com	303-744-5800	
Open	Hideki	Kanno	ebara	Professional Engineer (Oregon)	Business	kanno.hideki@ebara.com	00973-17293829	009
Open	Japhar	Khan	DRESSER - RAND	Field service Engineer		jkhan@Dresser-Rand.com		+96
Open	Claudius	Koslowski	BOGE	Technical Support		c.koslowski@boge.de	+49 5206 601-197	
Open	Eusebio	Lato	John Crane	Service Tech.		eusebio.lato@ohncrane.com	014 325 2000 ext. 104	055
Open	Hisham	Maali	BOGE	Manager of Boge Air systems		h.maali@ahqmachinery.com	+966 3 802 4938	+96
Open	Anas	Maher	Atlas Copco	aftermarket service engineer		anas.maher@sa.atlascopco.com		
Open	Gavin	Mailler	Atlas Copco Energas GmbH	Service Centre Manager	Business		+971 4 299 8825	+97
Open	Samson	Mammen	EagleBurgmann	Sales Manager		samson.mammen@se.eagleburgmann	+966 (14) 32574757/71	+96
Open	Montaser	Marar	Atlas Copco	Aftermarket Sales Consultant	Business	Montaser.Marar@sa.atlascopco.com	+966 3 882 4440	+96
Open	Martijn		BEMCON BV		Business		+31 (0)6 46711386	
Open	M.J.	Mathew	MANTURBO	General Manager -Sales-Tamimi	Business		038333170	050
Open	Marius	Melzer	Atlas Copco	Service Engineer		marius.melzer@de.atlascopco.com	+49 (0)22369650854	+49
Open	Ryan	Michael	Hisaka	Sales Engineer	Business	se-ryan@hisaka-me.com	+966 3 8331473	+96
Open	Masood	Mir	Atlas Copco	service manager		masood.mir@sa.atlascopco.com		
Open	Umesh	Mistry	Flowserve		Business	UMistry@Flowserve.com	+971 14 810 4797	+97
Open	Ehtesham	Mohammed	Binzagr			ehtesham@bfim.com.sa		
Open	Mudassar	Mohammed	Burkhardt Compression	Aftre sales engineer		Mohammed.Mudassar@BurkhardtComp	+971048870042	+97
Open	Shadab	Mohammed	Binzagr	Sales Manager		mohdshadab@bfim.com.sa	+966-055268325	+96
Open	Terad	Mousa	GE GAS & GAS INC	Sales Account Manager	Business		+966 (3)810 8505	+96
Open	Balachandran	Mundyath	Rezayat	Executive Sales		bala.mundyath@rezayat.com.sa	+966-(0)3-8825200	
Open	Christian	N. Naef	MANTURBO		Business	Christian.Naef@man.eu	+41 (0) 44 278 30 87	
Open	Abu Bakar	Naeem	Alfa Level Middle East Ltd.	Country Manager		abubakar.naeem@alfalaval.com	012 693 0146	055



Best Contractor Award

S. No.	Criteria	Points
01	Technical, Quality and other systems	20
02	Schedule, Response, Delivery of Materials/Works	20
03	Communication/Supervision, Cooperation & Attitude	20
04	Safety, Environment & Security	20
05	Documentation, Equipment, Tools & Procurement	20
	Total Evaluation Points	100



Al Samamat

Evaluation Summary – 2018-19:

Total 11 Service Contractors evaluated

Three Best Selected

Harsco Baroom (96%)

Al Samamat (96%)

Juba (95%)



Harsco Baroom

NATPET Logistics Service Providers (LSP) Development

- Saudi Bulk Transport – SBT

- Business Suspended on 9th August 2017 due to service quality issue.
- NATPET worked together with SBT to resolve the problem and to regain their business.
- SBT resolved all issues and approved for Gulf Sustainability Quality Assessment Scheme (Gulf SQAS)
- Business Resumed with NATPET dt 17-06-2018



Saudi Bulk Transport Ltd.		80132	
Location:	Jeddah (SA)	Module:	Warehouse (14WH)
Assessor:	Khalid A. Mabrok	Date:	11-06-2018
Agency:	TUV NORD	Status:	Active
Improvement Action Plan - Updated on 01-07-2018			

- SA Talke

- Transforming logistics documentation to paperless.
- Logistics Department has implemented the paper less solution for its container/ Truck check list using iPad



- Almajdouie & De Rijke Limited Co – MdR

- Developed for Gulf SQAS.



iPad system implementation

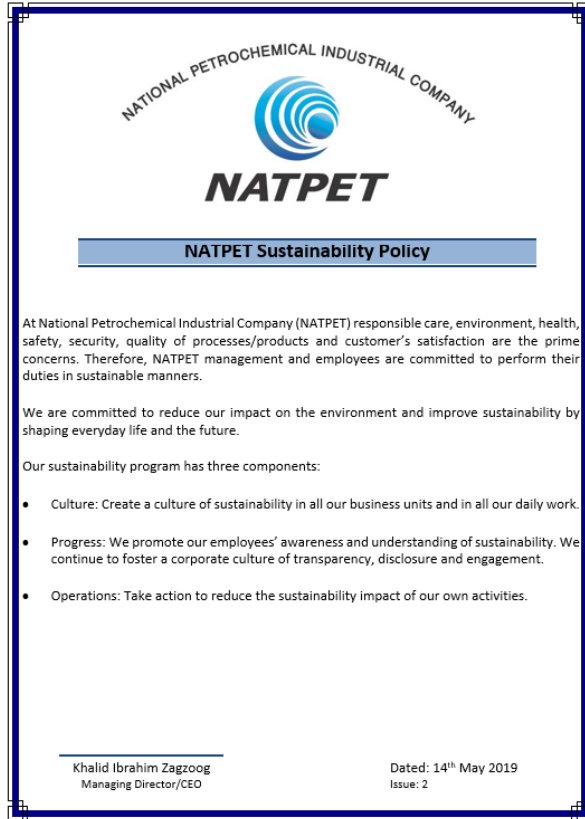


Core Area 4


Making a Commitment to Good Governance and High Quality

Commitment to Good Governance

NATPET Sustainability Policy



NATIONAL PETROCHEMICAL INDUSTRIAL COMPANY



NATPET

NATPET Sustainability Policy

At National Petrochemical Industrial Company (NATPET) responsible care, environment, health, safety, security, quality of processes/products and customer's satisfaction are the prime concerns. Therefore, NATPET management and employees are committed to perform their duties in sustainable manners.

We are committed to reduce our impact on the environment and improve sustainability by shaping everyday life and the future.

Our sustainability program has three components:

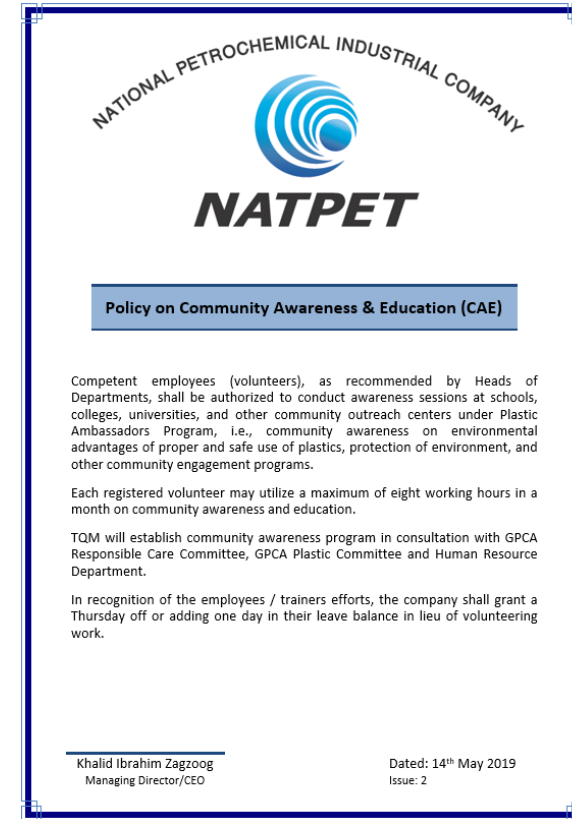
- Culture: Create a culture of sustainability in all our business units and in all our daily work.
- Progress: We promote our employees' awareness and understanding of sustainability. We continue to foster a corporate culture of transparency, disclosure and engagement.
- Operations: Take action to reduce the sustainability impact of our own activities.

Khalid Ibrahim Zagzoog
Managing Director/CEO


Dated: 14th May 2019
Issue: 2



Community Awareness & Education Policy



NATIONAL PETROCHEMICAL INDUSTRIAL COMPANY



NATPET

Policy on Community Awareness & Education (CAE)

Competent employees (volunteers), as recommended by Heads of Departments, shall be authorized to conduct awareness sessions at schools, colleges, universities, and other community outreach centers under Plastic Ambassadors Program, i.e., community awareness on environmental advantages of proper and safe use of plastics, protection of environment, and other community engagement programs.

Each registered volunteer may utilize a maximum of eight working hours in a month on community awareness and education.

TQM will establish community awareness program in consultation with GPCA Responsible Care Committee, GPCA Plastic Committee and Human Resource Department.

In recognition of the employees / trainers efforts, the company shall grant a Thursday off or adding one day in their leave balance in lieu of volunteering work.

Khalid Ibrahim Zagzoog
Managing Director/CEO

Dated: 14th May 2019
Issue: 2

Sustainability, Key Stakeholder & Material Issue

Our List of Key Stakeholders

- 1 Shareholders.
- 2 Customers.
3. Employees.
4. Government.
- 5 External Organizations e.g. GPCA.
6. Local Community.
7. Suppliers and contractors.
- 8 Distributors.
9. Banks.
- 10 Academic and Non-Profit Organizations.
- 11 Media.

Our List of Material Topics

- 1 Health and safety.
2. Waste management.
- 3 Customer satisfaction.
- 4 Business continuity.
- 5 Product quality.
- 6 Anti-corruption.
7. Financial performance.
- 8 Corporate Governance.
- 9 Education and training.
- 10 Labor rights.
- 11 Protecting the environment.
12. Sustainability.
- 13 Corporate social responsibility.
- 14 Reputation.
- 15 Energy consumption.
- 16 Raw materials & resources.



Commitment to High Quality

- RC 14001:2015 Responsible Care – Environment, Health, Safety, Security Management System
- ISO 14001:2015 Environment Management System
- ISO 9001:2015 Quality Management System:
- OHSAS 18001:2007 Health & Safety Management System
- ISO 17025:2005 Laboratory Accreditation Certificate
- ISO 22000:2005 Food Safety Management System
- ISO 27001:2013 Information Security Management System*
- ISO 22301:2012 Business Continuity Management System*
- ISO 50001:2011 Energy Management System*
- *Certification expected by Oct-Nov 2018

- NAPET Identity Guidelines Manual (in practice)
- To maintain our standards and ensure that all communications will follow one protocol in line with NATPET corporate image.
- NATPET Level of Authority (in practice)
- To ensure the efficient operation of NATPET by implementing proper controls through the appropriate approvals and delegation of authority required for various transactions and activities.



Financial Excellence

- NATPET maintains highly transparent systems for the availability of information, disclosure and reporting. The Management prepares and present fairly, the financial statements of the company in compliance with the International Financial Reporting Standards (IFRS), that are endorsed in the Kingdom of Saudi Arabia and other standards and pronouncements issued by SOCPA, and the applicable requirements of the regulations for Companies and the Company's By-laws.
- The company's financial statements comprise the following:
 - The statement of Financial Position
 - The statement of Income
 - The statement of comprehensive income
 - The statements of changes in equity
 - The cash flow statement
 - And the notes to the financial statements, which include a summary of significant accounting policies.
- It is important to disclose the true condition of the company conveying the financial state to the shareholders and investors.
- NATPET financial accounts are being audited by one of the Big 5 Accounting Firms were

Charity & Donations

Description	2016-17	2017-18	2018-19
Al Falah Schools	500,000	500,000	
Kha			
Do			
Al I			
Na			
Al J			
Hol			
Al			
Jan			
Xer			
Jed			
Ma			
Do			
Giv			
Poc			
Fin			
Co			
TOTAL	1,629,558	1,563,255	498,905

This specific part is deliberately removed due to confidentiality issues.



Quality Assurance

NATPET ISO 17025 Accredited Lab

- NATPET Lab is a certified ISO/IEC 17025 testing laboratory.
- This ISO Quality System is deemed necessary to ensure the technical competence in testing and reporting results for customers' satisfactions



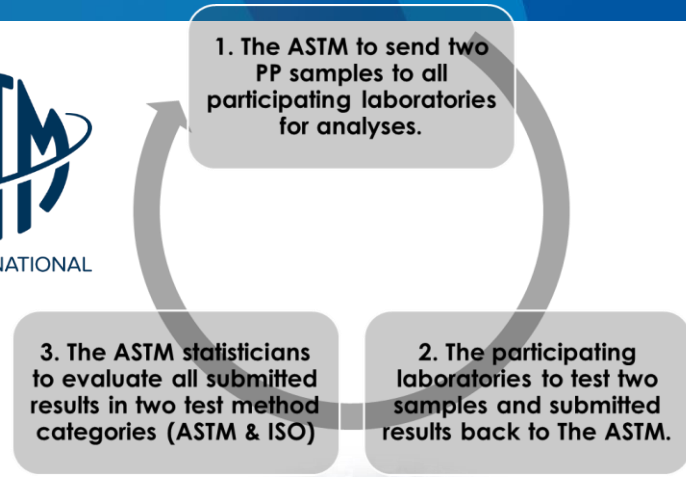
Compliance to International Standards

- NATPET Lab is committed to keep the testing quality as per the international highest standards.
- Major Test Methods are being reviewed and updated with the latest ASTM, ISO and Basell standard methods.



Proficiency Testing Performance Verification

- NATPET Lab ensures the testing performances of every personnel is on a par with the other laboratories through ASTM Proficiency Testing Programs (PTP).
- The reliability of the equipment and the lab personnel doing the tests are competent.

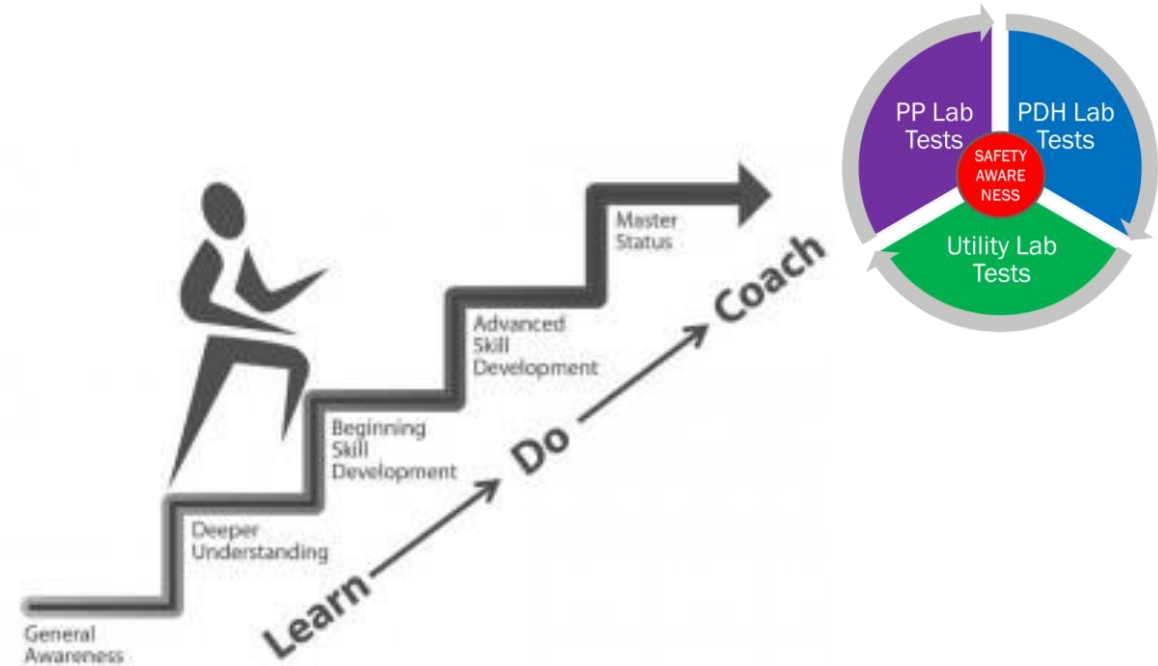


**American Standard For Testing and Materials
(ASTM) Proficiency Testing Program**



Career Development Training Plan

- General Awareness
 - Newly hired personnel will undergo lab safety awareness and do observations of all lab activities
- Deeper Understanding
 - Then, they will be given technical knowledge and test familiarizations.
- Beginning Skill Development
 - When ready, they will start performing actual routine analyses under strict supervisions of lab supervisors and mentors in 3 labs (Utility, PDH & PP) on rotational basis
- Advanced Skill Development
 - Two qualified mentors are assigned to evaluate their acquired skills and so to carry out further for their progressive career advancements.
- Master Status
 - Everyone is encouraged to acquire mastery and to pass on (teach) their expertise to the others.



NATPET State-of-the-Art Facility

Sustainable Testing

- Adoption of NMR's Capability.
 - NMR technique reduces analysis time, requires less manpower skills, and save chemical costs, thus making it environment-friendly.
- Adoption of Hydrocarbon Analyzer.
 - Operation can monitor the efficiency of Depropanizer.
- Lab supports all new developments through reliable quality tests:
 - Everclear 3988B Vs Millad NX-8000 additives.
 - Phenol-based Vs free phenol additives (Teldene H25FBA)
 - Phthalate-based (ZN-118) Vs non-phthalate-based (ZN-128)

Business Continuity

- Almost all 21 major test requirements have backup methods and/or instruments.

Major Analyses	Primary and Backup Methods
Melt Flow Index	5 MFI machines
Xylene Solubles	classic method and NMR
Carbon Analyzer for Catalysts	2 LECO instruments
Gas Chromatographs	4 GCs and 11 backup GCs
Additives Analyses	XRF and FTIR



Laboratory Collaboration

- In-house Collaboration:
 - Collaboration between NATPET and Schülman Labs to minimize Catastrophic issue



- External Collaboration:
 - NATPET Lab has strong relationship with other petrochemical laboratories for mutual analytical supports and risk assessments, when required.



Appreciation Letter on Collaboration Between Cristal and NATPET



28th May 2015

The National Petrochemical Industrial Co. NATPET

Addressed to: Matouq Hassan Jannah
Managing Director of Operation & Maintenance

Subject: Appreciation towards establishing the collaborative program between Cristal and Natpet

Dear Mr. Jannah

I would like to take this opportunity to express our gratitude towards the genuine response that Natpet has bestowed in the direction of establishing a collaborative program between our laboratories in terms of all possible testing, equipment and chemicals.

The exchanged visits between our laboratory's teams that took place recently, demonstrated a successful initiative for collaboration. This will certainly form a solid relationship between Cristal and Natpet laboratory's experts and will lead us to an advanced level of technical knowledge teamwork that will contribute to the success of our national industries.

Once again, thank you for your support and endorsement for the continuing collaboration between our companies.

Best regards,

Abdullah Abdulljaleel Murshid
Yanbu Complex Director and GP Executive Advisor

The National Titanium Dioxide Co. Ltd.
Headquarter: P.O. Box 13586, Jeddah 21414, KSA
Plant: P.O. Box 30320, Madinat Yanbu Al-Sinayah 41912
T: +966 4 321 2800 F: +966 4 396 1018
United Kingdom Co. Fully Paid Capital: SR 2,362,500,000
C.R. 4032062296

الشركة الوطنية ثاني أكسيد التيتانيوم المحدودة
المقر الرئيسي: ب.ص. 13586، جدة 21414، المملكة العربية السعودية
المصنع: ب.ص. 30320، مدينة ينبع الصناعية 41912
هاتف: +966 4 321 2800 فاكس: +966 4 396 1018
شركة ذات مسؤولية محدودة، رأس المال المدفوع بالكامل 2,362,500,000 ريال سعودي.
رقم التسجيل التجاري: 4032062296


www.cristal.com



Energy Management

- Process Engineering & Technology Department:
 - Monitoring Energy consumption and advising Technique to end user to keep with in targets
 - Monitoring Resources (Utilities) and Optimizing with the help of end users
 - Monitoring critical equipment forecast that lead to TA and SD advising users
- NATPET Strategy to Reduce utilization of resources:
 - Utility supply agreement amendment have done with the suppliers in order reduce Utilities and Power.

Utility User Services Agreement					
Type of Utility Services	Unit	Intial	Amendment 2015	Amendment 2016	Reduction
Process Water	m3/day	1200	1100	822	32%
Industrial Waste Water	m3/day	648	550	411	37%
Electricity 115 KVA	KVA	55000	38000	34000	38%
Sea water	M3/hr	27000	24500	21000	22%
Potable water	M3/hr	270	158	112	59%
Sanitary waste water	m3/hr	70	79	56	20%
Ethylene	Ton /year min	6000	NA	2000	67%



Energy Policy

National Petrochemical Industrial Company (NATPET), is committed to sustainable growth, based on our principles of integrity, quality, safety, social, Responsible care and environmental responsibility. The management has set up an energy policy to have our clear vision and direction to improve our use of energy as the energy plays integral part of our principles. Our goal is to output the best quality product at the least consumption of energy while increasing the value of our product.

In order to achieve our objectives and targets, the management of NATPET operates under the enhanced energy management system (hereinafter refer to as "EnMS") in compliance with the International Standard ISO50001, and with related legal and other requirements as the baseline.

By operating effectively under EnMS, our objectives are:

1. The management is to provide adequate resources for EnMS operation to achieve targets.
2. The management is to provide information and necessary training sessions to the people of organization for an active operation as well as enhancing their skill.
3. To understand the status of energy use and consumption for reviewing our energy situation to come up with energy conservation opportunities (ECO's).
4. To plan action items based on ECO's and implement, review and improve.
5. To introduce energy monitoring concept, PDCA cycle to be integrated in EnMS operation for gradual enhancement of real time monitoring and targeting practice.
6. To derive the optimum energy consumption for each product we produce to operate under measurable energy performance indicator.
7. To prevent generating "MUDA (waste)".
8. To tackle with problems or potential problems aggressively, for timely corrective actions and recurrence prevention.
9. To collaborate with our suppliers and customers for producing energy efficient products.
10. To conduct regular audits to verify compliance and to pursue continuous improvement.
11. To hold management review session at least twice annually to evaluate the progress and identify actions for improvement including reviewing this policy.
12. To communicate externally for updating our energy performance.

Targets:

- By defining the total energy consumption of our business year 2017 as the baseline, we aim to reduce by 3 % in the business year 2018, (CO2 reduction of 5% and water consumption reduction of 7%)

The Top Management has ultimate accountability for this policy. The Top Management delegates responsibilities for the implementation of this policy to EnMS team and TQM. All employees are responsible for understanding how this policy applies to them in their day to day activities.

Matouq Jannah
Managing Director (O&M)

File name: EnMS-Policy

Energy Management (To retain Energy in Targets)

- Daily monitoring of Imported sales gas consumption
- Yearly Steam trap survey to identify passing trap and attend
- Monitoring and stopping unwanted equipment , optimizing with advance control methods
- Streetlights switched off based on photocell and office lights are switched off by Employees before leaving offices (cultural change)
- Monthly Analyzing leading Turn around forecasted equipment's and take necessary steps to enhance the unit run length
- KPI for year 2018 facility level to reduce utilities will be continued in year 2019
- Analyzing and Modifying equipment which leads to longer shutdown and Turn around

NATPET – Customer Focused Organization

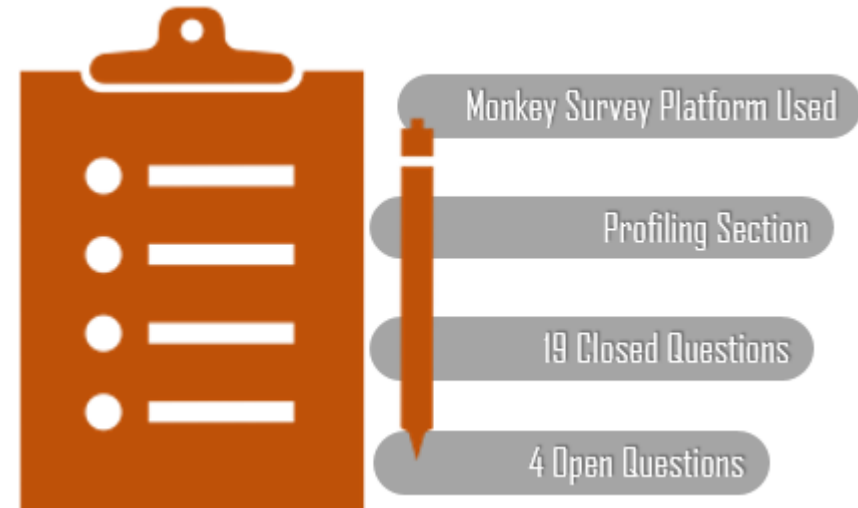
Customer Satisfaction Survey (CSS)

- The CSS was launched in 2016 by a Co-Joint effort from Product Application and Marketing Departments.

The purpose was to better understand our customers needs and to further improve our product and service qualities. It has been set as a biennial action.

- The survey was restricted to customers that have purchased from NATPET in the past two-years.
- No restrictions regarding origin of customer.
- CSS in figures:
 - 150 customers contacted.
 - 80 total respondents. (53.33% respond rate)
 - 73 converters respondents, 7 traders respondents.
- Three major and two minor areas of improvement

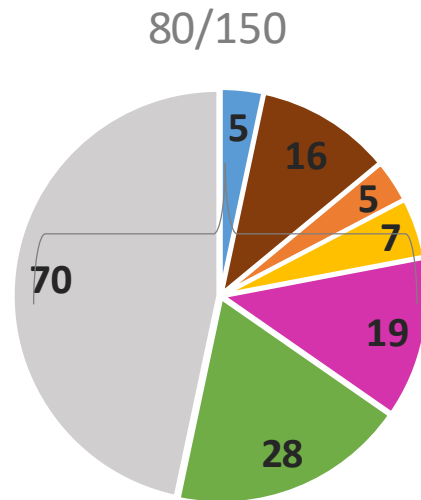
LAYOUT OF SURVEY



Sample Selection and Calculation Methodology

Respondents Origins & Result

- European Countries
- African Countries
- Middle-East Countries
- Americas Countries
- Turkey
- Asian Countries
- Non-Respondants



Rank	Field	Importance Score (Out of 730)	Satisfaction Score (Out of 730)	GAP
1	Consistency in Quality and Performance	658	602	56
2	Services in Order Process	642	573	69
3	Delivered on Time and Quantity	639	556	83
4	Responsiveness of Sales	634	579	55
5	Responsiveness Tech Team	618	579	39
6	Performance Grade vs Comp	614	580	34
7	Price Reasonable vs Comp	609	495	114
8	Grade Improvement	608	553	55
9	Availability of Grades	587	514	73
10	Tech Assistance Effectiveness	586	527	59
11	Technical Information Web	570	561	9
12	Website Appearance	525	538	-13

■ Lowest Value ■ Highest Value

Noticed areas of improvement and actions taken.

Delivery on Time and Quantity

- Investigate Supply Change regarding Timely and Quantity wise deliveries.
- Re-evaluate distributor's performance in terms of delivery criteria.

Major

Availability of grades

- Check about the grades availability each month of H25FBA in Turkey
- Production Plan to be revisited

Major

Responsiveness of sales team

- Africa: Approach our agents for more support to our customers
- Distributor's performance to be reviewed (especially in Pakistan)

Major

Technical Assistance

- Communicate with Distributor about this problem.
- Arrange technical training for distributor's team
- Maintain the performance in Direct Sales regions
- Arrange session regarding technical awareness for downstream sector

Minor

Quality of product and its performance

- Close coordination with QC Lab & Operation to improve further the quality of grades
- To be discussed during upcoming Product Review Committee (PRC) meeting

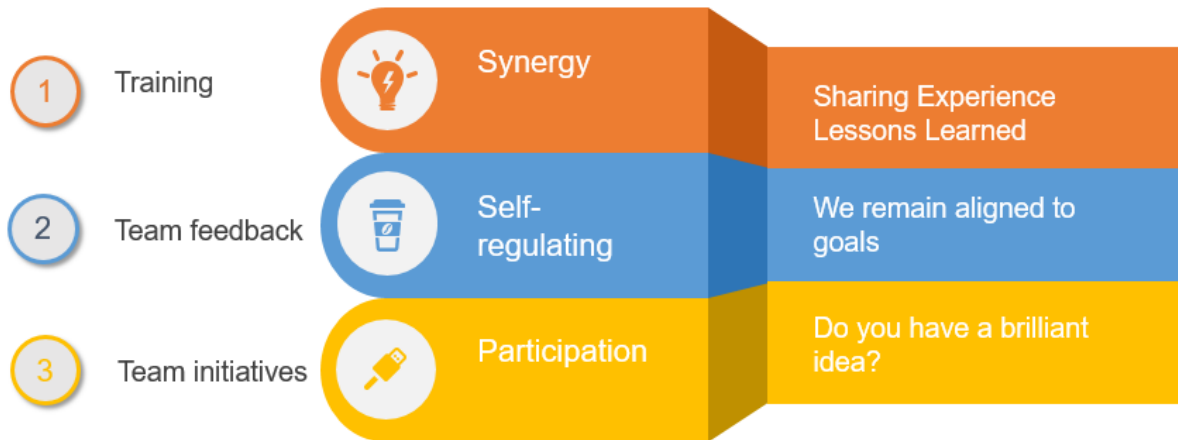
Minor

Commitment to High Quality

Propane dehydrogenation (PDH) – A Highly Reliability Plant



Continued Learning is the Key to Improving



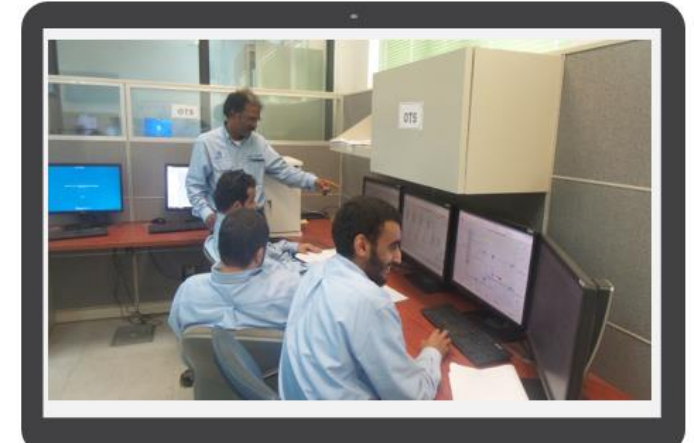
Online Training Simulator (OTS)



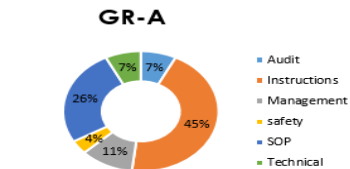
Training Tasks



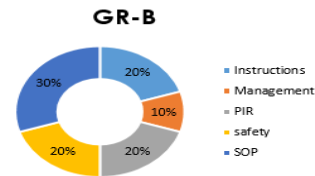
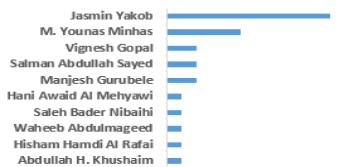
Team Engagements



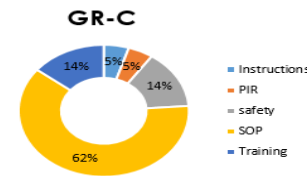
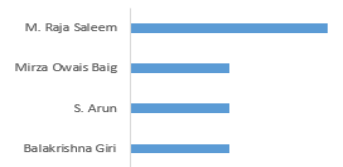
June 2018



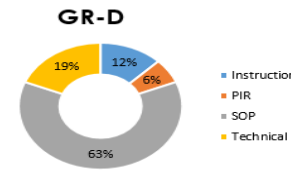
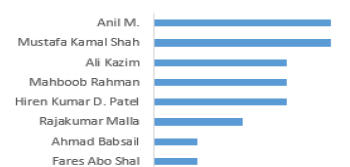
131:35 Man-hours in 27 sessions



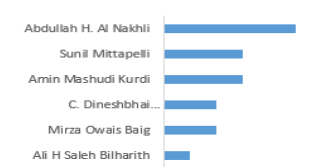
35:30 Man-hours in 10 sessions



68:15 Man-hours in 21 sessions



89:45 Man-hours in 16 sessions

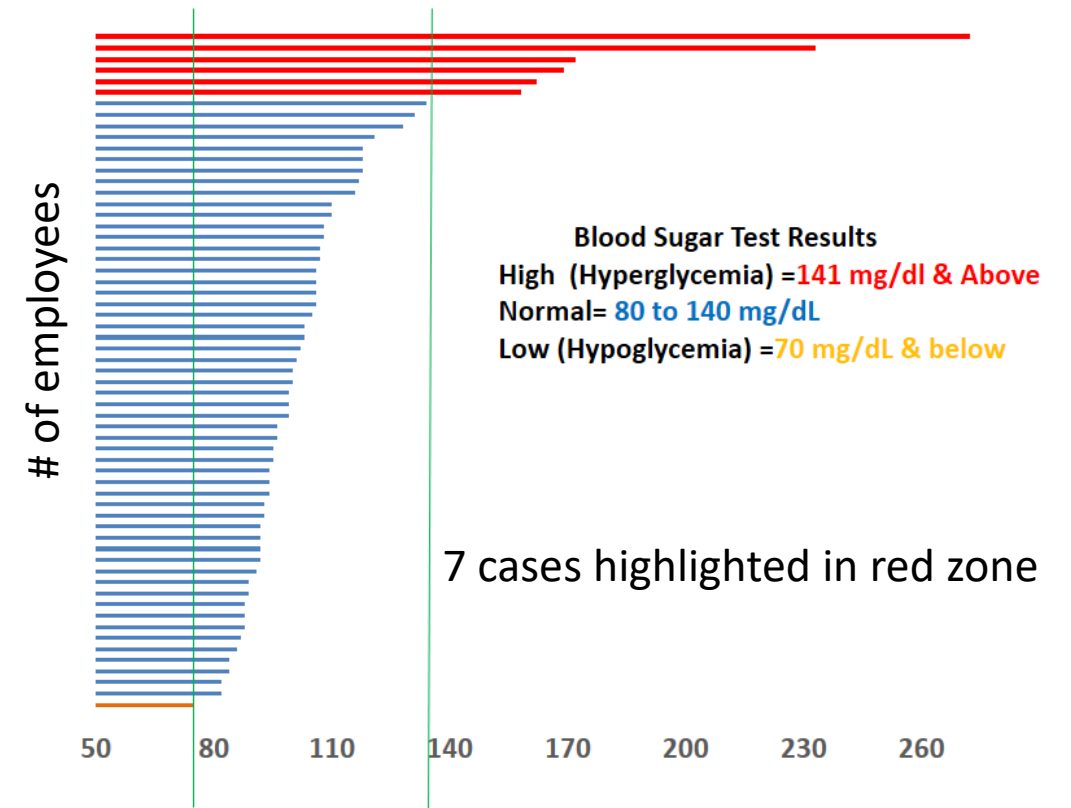


Employee Participation

Team Participation & Initiatives



Blood Sugar Test Results PDH Plant Staff



Commitment to High Quality - Maintenance

5S Approach

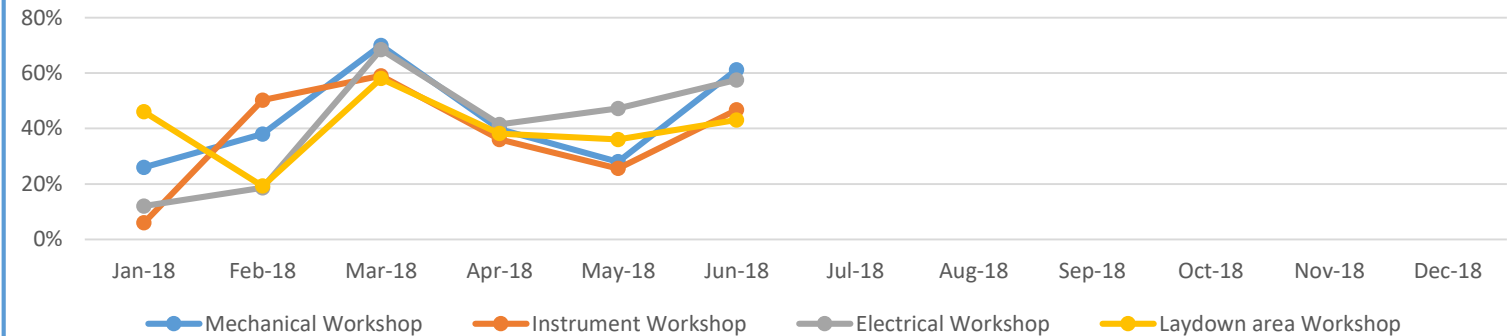
- The way of “learning by doing”
 - Approximately 20% by learning and 80% by doing.
- Application of principles on your work process
- Focused on immediate implementation
- Immediate tangible benefits



The Benefits of 5S

- Less waste (Improved Efficiency).
- Reduced space used for storage.
- Improved Maintenance.
- Improved safety.
- Better, more committed employees.
- Improved Quality.

5S Evaluation Results



Commitment to High Quality - IT

Information Technology 24/7

- NATPET IT researches and implement cost effective latest solutions that enhance the company ability to provide quality services for all employees of NATPET and JVs to operate successfully.
- Committed to provide:
 - Servers Management
 - Computing
 - SAP/ERP Systems
 - Telecommunications
 - Networking Infrastructure & Security
 - Technical Support
- Service Partners:



Innovative Solutions

- Skype for Business Integration with Cisco IP Phones and mobile devices
- Virtual Private Network
- Ability of Operating all IT Infrastructure Remotely
- PP Economical Grades Dashboard / What-If Analysis
- Migrating to cloud
- Improving Communication – MS Exchange 2016
- Improving Intranet portal – MS SharePoint 2016
- Dashboards:
 - Dashboards track progress & determine business performance and allow effective business analysis.

Commitment to High Quality - IT

Information Technology 24/7

- SAP Success Factor
 - Develop and improve the performance of individuals and teams.
 - Retain and award valuable employees.
 - Create a two way system of communication between the managers and the employees for clarifying expectations and communicating the functional and organizational goals.
- PI System - Upgrade the Plant information Management system
 - Keep all plant data online and available to perform business intelligence or ad hoc analyses in real time, without impacting other users or operations. And it is also integrated with MS SharePoint and PI system which will support our paperless solution
- Virtualization
 - Virtualization is a green technology, it Enables server consolidation consequently the number of physical servers can be reduced. This alone brings benefits such as reduced floor space, power consumption and air conditioning costs.
 - NATPET hosted 40 virtual servers on 15 physical servers.

Information Security

- Firewalls – Cisco ASA and WatchGuard
 - Includes network security, system security, application security, virus protection, encryption, data security, audit and monitoring systems and services, etc
- Patch Management
- Vulnerability Testing
- Identity and Access Management
 - Provide secure access to systems and applications and ensure all data is only accessible to the appropriate people.
- Security policy and compliance
 - Emergency Response Plan & Preparedness
 - Risk Management
 - Incident Management
 - Business Continuity
- Paperless: on MS SharePoint

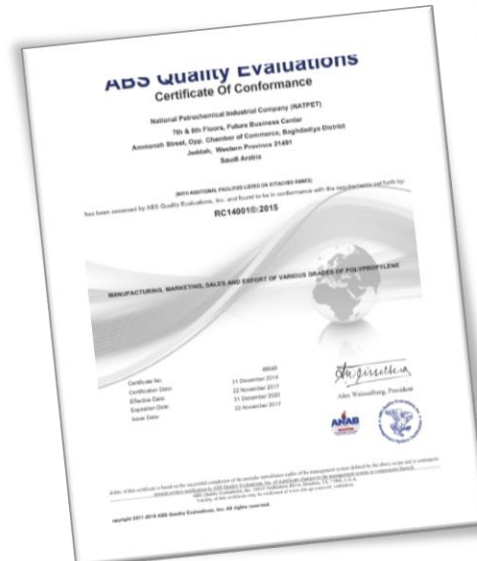
Core Area 5

Responsible Environmental Management

NATPET practices that contribute to the quality of environment on along-term basis.

Environment Management System

- NATPET methodology on environment sustainability:
 - Management Commitment
 - External Reporting
 - NATPET Environment Initiatives
 - Environmental Management Programs



NATIONAL PETROCHEMICAL INDUSTRIAL COMPANY

NATPET


Quality, Environment, Health, Safety, Security (QEHS) & Responsible care (RC -14001) Policy

At National Petrochemical Industrial Company (NATPET), responsible care, quality, health, safety, security of employee and protection of environment is the prime concern, therefore, NATPET management and employees are committed to perform their duties in safe, secure and healthy manners through risk management, and preventing accident, work related hazards and TQM as a way of business. As a Responsible company employee development, implementing the best practices prevailing in the industry by participation of management, employees and contractors are the main objectives of NATPET QEHS Programs.

Through a program of continual improvement, NATPET is committed to:

- Comply fully with all relevant QEHS & Responsible Care standards, guidance and codes of practices, laws and regulations as well as take any additional measures considered necessary,
- Provide and maintain quality, safe work environment, equipment, systems of work and work facilities to prevent industrial risk and its adverse impact on the environment,
- Creating an environment of teamwork and providing QEHS information, instructions, training and supervision for employees to enable them to carry out their tasks competently and safely,
- Follow TQM & safe work practices and continually improve the effectiveness of QEHS system,
- Conserve natural resources by their responsible and efficient use in all our operations,
- Investigate any incidents that occurs, implement corrective actions and share the lesson learned with all employees, contractors and other interested parties.
- Line management must be aware and take responsibility for security aspects including cyber security and adherence to company's security regulation is obligatory to all employees,
- Ensure safe transportation, storage and use of chemicals/substances to preserve the health, safety, security and the environment of site and its neighborhood,
- Promote openness with the stockholders for their shared responsibility,
- Periodically review compliances to verify the relevance and any revisions required for further improvement,
- Strive to be amongst the leaders in the field of sustainable development and management of Responsible Care programs for QEHS, welfare of employees and other stakeholders,

This policy has been endorsed by the President & COO of NATPET, who takes prime responsibility for allocating sufficient resources to ensure its objectives are achieved and Responsible Care requirements are met and available to public and other interested parties.

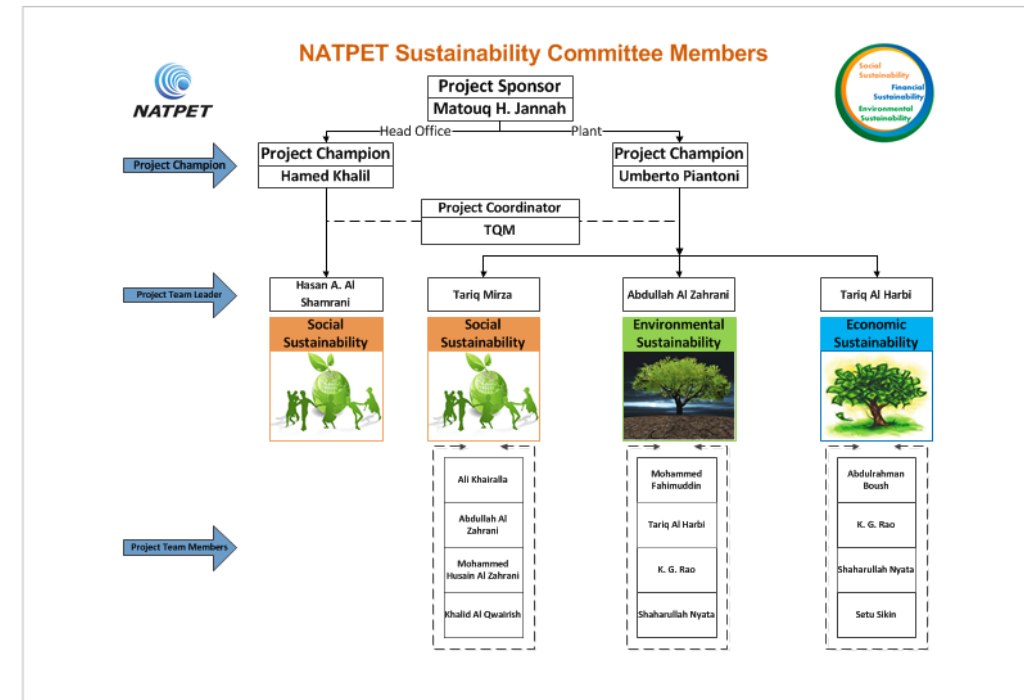
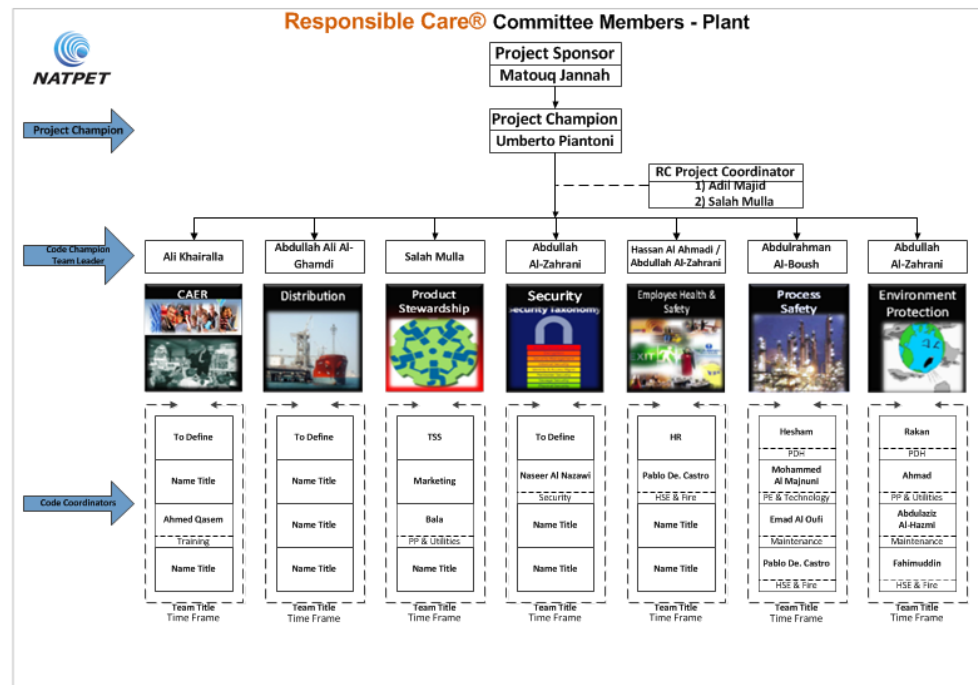

 Jamal J. Malaikah
 President & COO

Dated: 1st September 2014
 Document: QEHS-01, Issue: 1



Management Commitment

NATPET is expected to conduct its business in full recognition of socially-shared responsibility, in order to preserve the environment and to ensure health and safety of people harmonized with preservation of the global environment and local communities.



External Reporting

- NATPET External Environmental reporting includes the to the followings:
 - Royal Commission Environmental Control Department
 - Annual Environmental Compliance to RC
 - Stack Emission Monitoring Reports
 - Presidency of Metrology and Environment
 - King Abdullah City of Science and Technology(KACST)
 - King Abdullah city for atomic and Renewable Energy (KACARE)
 - Gulf Petrochemical and Chemical Association(GPCA)



Environment Major Milestones

- Zero violation of Royal Commission Environmental Regulations 2015(RCER 2015) & Environmental permit to operate
- 100% compliance to set parameter for Industrial wastewater discharge to MARAFIQ IWTP(Industrial Waste water treatment/Recycling plant).
- 100% compliance of down stream Joint Venture Projects with their relevant Environmental permits
- No Groundwater contamination found as per groundwater sampling and laboratory analysis reports by the RC approved third party.
- CEMS(Continuous Emissions monitoring System) performance in Range with Emission range Set by RC for various Environmental air pollutants i.e. Co₂,Cl₂,Hcl,SOX, COX.
- Annual Fugitive Emissions performance in line with RC Regulations through GBN(Gulf Business Network) As Approved RC vendor.
- Plant Boundary Noise Survey Conducted and found in line with RC Regulations.
- No incident of leakage for radioactive sources and found in line with KACARE(king Abdullah city of atomic and renewable energy) regulations.
- Environmental Initiatives:
 - Energy Audit – Saudi Efficiency program and classified amongst the best
 - Co₂ Reduction program
 - Renewable energy program – Balderrie Energies GmbH.
 - The engineering and technical experts of the NATPET contribute in the way of proposing new materials, equipment modification, recycle/reuse of waste.

Protection of Environment from Ionizing Radiation

- NATPET have 29 radioactive sources in PP and PDH plant.
- There is no surface radioactive contamination in accordance with Saudi Arabian National Regulation during the wipe test conducted by third party.
- Comprehensive and detailed radiation protection management program for radiation workers and employees.
- Valid Practice License from concern regulatory authority of KACARE.

TECHNOLOGY EXPERTS شركة خبراء التقنية

بسم الله الرحمن الرحيم
تقرير المختبر
A WIDE TEST REPORT

Mod: 203 43 Date: May 21, 2017

المختبر المعتمد من قبل الهيئة العامة للغذاء والدواء
المعتمد من قبل الهيئة العامة للغذاء والدواء
THE GENERAL AUTHORITY FOR FOOD & DRUGS

النتيجة الإجمالي

Sl. No.	Measurement	Radioisotope	Source No.	Activity (Bq)	Measurement date	Test Results (Bq/cm ²)
1	Wipe Test	Cs-137	137-2404	50	2016	Less than 1.17
2	"	Cs-137	137-2404	50	2016	Less than 1.17
3	"	Cs-137	137-2404	50	2016	Less than 1.17
4	"	Cs-137	137-2404	50	2016	Less than 1.17
5	"	Cs-137	137-2404	50	2016	Less than 1.17
6	"	Cs-137	137-2404	50	2016	Less than 1.17
7	"	Cs-137	137-2404	50	2016	Less than 1.17
8	"	Cs-137	137-2404	50	2016	Less than 1.17
9	"	Cs-137	137-2404	50	2016	Less than 1.17
10	"	Cs-137	137-2404	50	2016	Less than 1.17
11	"	Cs-137	137-2404	50	2016	Less than 1.17
12	"	Cs-137	137-2404	50	2016	Less than 1.17
13	"	Cs-137	137-2404	50	2016	Less than 1.17
14	"	Cs-137	137-2404	50	2016	Less than 1.17
15	"	Cs-137	137-2404	50	2016	Less than 1.17
16	"	Cs-137	137-2404	50	2016	Less than 1.17
17	"	Cs-137	137-2404	50	2016	Less than 1.17
18	"	Cs-137	137-2404	50	2016	Less than 1.17
19	"	Cs-137	137-2404	50	2016	Less than 1.17
20	"	Cs-137	137-2404	50	2016	Less than 1.17

Remarks: Less than the Lower Level of Detection (LLD), means less than 0.02 Bq/cm² for Cs-137, for the measuring time period. This means that there is no surface radioactive contamination for the wiped sources in accordance with the Saudi Arabian National Regulation.

SCIENTIFIC CONSULTANT: PROF. M. FAROUK AHMAD

GENERAL MANAGER: HANIFA A. ALSHAIWAN

Kingdom of Saudi Arabia
King Abdulaziz City for Science and Technology
National Center for Radiation Protection

مدينة الملك عبدالعزيز للعلوم والتقنية
KACST

السلطة العامة السعودية
هيئة العامة للغذاء والدواء
المركز الوطني لحماية من الإشعاع

رقم الرخصة : (ق ن - ٥٤ - ٢٨٢)

ممارسة أجهزة القياس النووية

صدرت في : ١٤٣٣/٠٦/٢٢ هـ

تنتهي في : ١٤٣٥/٠٦/٠٥ هـ

بهذا تم منح
الشركة الوطنية للصناعات البتروكيميائية (ناتبت) - بنين الصناعية
رقم السجل التجاري (٤٠٣٠١٢٦٦٤١)

رخصة لمزاولة الممارسة بالمصادر المشعة التالية

Isotopes	Max. No.	Physical State	Containment	Max. Activity/Source
Cs-137	29	Solid	Sealed	3 Ci

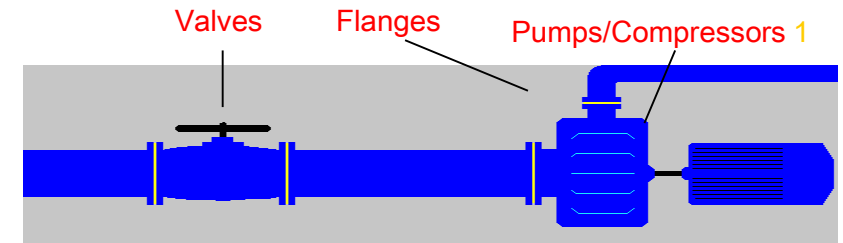
المشرف على المركز الوطني لحماية من الإشعاع
الاسم: د. عبدالله بن صالح الخوي
التوقيع:

مدير إدارة الترخيص
الاسم: أ. خالد بن راشد الظبيعي
التوقيع:

مركز الملك عبدالعزيز للعلوم والتقنية
المركز الوطني لحماية من الإشعاع
National Center for Radiation Protection

Environment Protection Programs

- Programs are implemented across the NATPET and monitored as per USEPA methodology
- Continuous emission monitoring of air pollutants
- Stack emissions monitoring
- Relative Accuracy test Audit of each online analyzer
- Fugitive emissions monitoring program
- Flare emissions monitoring and management.
- Re-use of NaHS solution as byproduct:
 - About 490 Ton NaHS solution re-used as byproduct - saving SR 1.47 million.
- Hybrid System Implementation and Reduction of Water discharge:
 - Saving of approximately 30,000 cubic meter of process water per year.
- Third Party (SGS) Confirmation for Ground Water Quality



Monitoring

Reducing GHG

- Minimizing the C2 and C3 flaring by installing special cooler in GPR which will reduce carbon foot print and will save money by saving C2 and C3 burning.
- Flare Lost Optimization
- Catalyst Recycling Project
- Energy benchmarking
- Control valves/Enviro Seal Gland packing
- Installation of Cladding on Reactor Critical joints

Environmental Management Programs

- Industrial hazardous Waste Management Program
- Continuous Catalyst Regeneration Management Program
- Sale and Disposition of Sodium Hydrogen-sulphide Management Program
- Nuclear Gauges Management Program
- Natural Gas Management Program
- Wastewater and Electricity Management Program
- Ground water monitoring system
- Legal requirements for Royal Commission Environmental Regulations
- Noise monitoring management
- Air Quality management system
- Non contact cooling water management
- Process water management
- Industrial waste water management
- Illumination monitoring and industrial Hygiene monitoring program

E-Files Archiving (Sustainability Project)

- Followings are the key features of E-filing project:
 - Utilization of available resources, no external services.
 - Effective utilization of manpower during low work load period.
 - E filing/ scanning of hard copies from 2008 to 2018, around 22,000 files each consist at-lest 10 pages occupying three stores of size 3X2M.
 - No additional cost for the project, utilized available scanner and E storage.
 - Fast recovery of files by just entering the file nr.
 - Sale of existing papers to recycling company (after shredding).
 - Saving around SR 400,000/ Space rent and external service providers cost.



Eco-profile of Polyolefins (HDPE AND PP) IN THE GCC

- Study was carried out in the years 2015 and 2016. The aim was to create an Eco-profile for HDPE and PP producing the GCC. Eco-profiles assess the environmental impacts along the production chain from «cradle-to-gate».
- The following impact categories were taken into account for the assessment:
 - The climate change, ozone depletion, eutrophication, acidification, particulate matter formation, ionizing radiation, photochemical ozone formation, and resource depletion. Furthermore, primary energy demand and water use were investigated.

Table 1: Results of the LCIA for the production of ethylene, propylene, HDPE, and PP in the GCC

Impact category	Unit	Ethylene	Propylene Steam cracker	Propylene PDH/ Metat.	Propylene Prod. Mix	HDPE	PP
Global Warming Potential	kg CO ₂ eq.	1.21	1.25	1.88	1.51	1.70	1.95
Primary Energy Demand	MJ	73.5	74.9	89.8	81.1	77.8	86.6
Abiotic Depletion Potential, elem.	^{x10⁻⁷} kg Sb eq.	1.05	1.35	6.14	3.34	1.11	3.74
Abiotic Depletion Potential, fossil	MJ	65.51	66.21	80.08	71.98	69.28	76.50
Acidification Potential	g SO ₂ eq.	2.86	1.55	2.09	1.78	3.82	2.94
Particulate Matter (PM10)	g PM10 eq.	2.30	1.63	2.20	1.87	3.25	2.91
Eutrophication Potential	g PO ₄ eq.	0.19	0.20	0.42	0.29	0.32	0.40
Ozone Depletion Potential	^{x10⁻³} g CFC11 eq.	0.21	0.22	0.41	0.30	0.34	0.40
Ionizing Radiation	g U235 eq.	2.48	2.87	5.73	4.06	7.38	8.36
Photochemical Ozone Formation	g C ₂ H ₄ eq.	1.15	1.10	1.54	1.28	1.82	1.84

Thank You

