UTM
UNIVERSITI TEKNOLOGI MALAYSIA

INSPIRING CREATIVE AND INNOVATIVE MINDS

www.utm.my

UTM-MPRC INSTITUTE FOR OIL AND GAS

29th October, 2013

Assoc. Prof. Engr. Dr. Rahmat Mohsin
UTM-MPRC INSTITUTE FOR OIL AND GAS

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

INSPIRING CREATIVE AND INNOVATIVE MINDS

www.utm.my

GASTEG's **Vision**

" A global knowledge-based centre of reference for the gas industry "

GASTEG's Mission

" To provide comprehensive platform in the professional training, accredited laboratory services, consultancy, product development, information dissemination and R & D for the development of the gas industry "

GASTEG's **Objective**

" To emerge as a progressive global hub in the manpower training programme, research and product development and centre of referencing in the gas industry by inculcating its culture of excellence "

MAJOR MONITORING FACTORS:

- **RESEARCH FUNDS: External, Internal**
- **PUBLICATIONS: Journals, IPs, Copyright, Licencing**
- **PROFESSIONAL TRAINING: Engineers, Fitters, OB**
- **CONSULTANCY AND SERVICES: Labs, Others**

UNIVERSITY TEKNOLOGI MALAYSIA

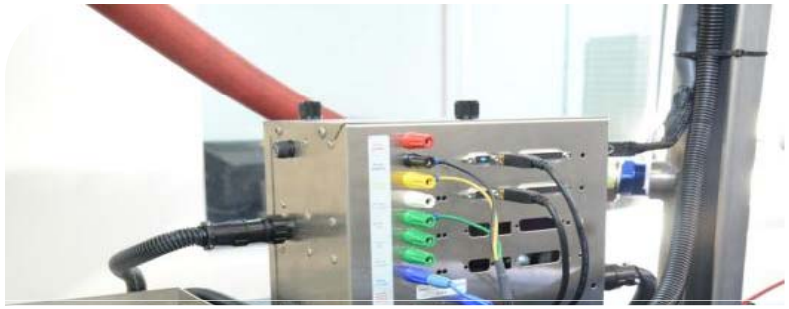
Malaysla's Premier University In Engineering and Technology

UNIVERSITY TEKNOLOGI MALAYSIA

Malaysia's Premier University In Engineering and Technology

INTEGRATED ENGINE PERFORMANCE

DATA GATHERING MONITORING



PIPING TOOLS AND EQUIPMENTS

GASTEG's Team Member

Activities

- TRAINING AND COURSES
- RESEARCH AND DEVELOPMENT
- CONSULTANCY AND SERVICES

Training and Courses

- **Courses Organised by GASTEG:**
  - **A Course In Gas Distribution for Gas Engineers and Gas Engineering Supervisors**
  - **Gas Fitters Class I, II and III**
  - Responsible Persons
  - A Training in CFD Theory and Application
  - Gas Management for Contractors
  - Occupational Safety and Health
  - Awareness of Gas Safety and handling

Training and Courses

❖ New Courses Introduced by GASTEG:

- A Competency Training for NGV Installations
- A Competency Training for DDF Installations
- A Training in PE Pipe Systems and Jointing
- A Training in Copper Pipe Jointing Systems
- Preparatory Course for Professional Recognition
- Gas Safety System and Emergency Handling
- Gas Explosion and Safety Mitigation

Training and Courses

❖ Seminars and Workshops

- Gas Safety and Legislation Seminar
- National Gas Reticulation Industry Seminar
- Gas Reticulation Safety and Legislation Seminar
- Gas Reticulation Seminar
- Gas Distribution Seminar
- *A Computational Fluid Dynamic Workshop*
- *Computer Aided Design Drawing "Design Project How Its Work"*
- *Gas Introduction One Day Workshop*
- *Gas Introduction and Safety Workshop*

JABATAN BEKALAN ELEKTRIK DAN GAS
MALAYSIA

PENTAULIAHAN SEBAGAI PUSAT LATIHAN
DAN PEPERIKSAAN

Institusi :

Pusat Teknologi Gas (Gasteg)
Fakulti Kejuruteraan Kimia dan Kejuruteraan Sumber Asli
Universiti Teknologi Malaysia
81310 Skudai
Johor

DENGAN INI KETUA PENGARAH BEKALAN GAS MALAYSIA MEMBERI PENTAULIAHAN KEPADA INSTITUSI DI ATAS SEBAGAI PUSAT LATIHAN DAN PEPERIKSAAN UNTUK :-

KURSUS : JURUTERA GAS

KATEGORI : JURUTERA GAS
PENYELIA KEJURUTERAAN GAS

SYARAT-SYARAT PENTAULIAHAN ADALAH SEPERTI DI LAMPIRAN A DAN TEMPOH PENGIKTIRAFAN BERMULA DARI TARIKH PERAKUAN PENGIKTIRAFAN INI DITANDATANGANI DAN AKAN TERBATAL JIKA PIHAK INSTITUSI MELANGGAR SYARAT-SYARAT YANG DITETAPKAN.

(Datuk Ir. Mohd. Annas bin Hj. Mohd. Nor)
Ketua Pengarah Bekalan Gas
Malaysia.

Tarikh : 4 Oktober 1999

JABATAN BEKALAN ELEKTRIK DAN GAS
MALAYSIA

PENTAULIAHAN SEBAGAI PUSAT LATIHAN
DAN PEPERIKSAAN

Institusi :

Pusat Teknologi Gas (Gasteg)
Fakulti Kejuruteraan Kimia dan Kejuruteraan Sumber Asli
Universiti Teknologi Malaysia
81310 Skudai
Johor

DENGAN INI KETUA PENGARAH BEKALAN GAS MALAYSIA MEMBERI PENTAULIAHAN KEPADA INSTITUSI DI ATAS SEBAGAI PUSAT LATIHAN DAN PEPERIKSAAN UNTUK :-

KURSUS : JURUGEGAS GAS

KATEGORI : JURUGEGAS GAS I
JURUGEGAS GAS II
JURUGEGAS GAS III

SYARAT-SYARAT PENTAULIAHAN ADALAH SEPERTI DI LAMPIRAN A DAN TEMPOH PENGIKTIRAFAN BERMULA DARI TARIKH PERAKUAN PENGIKTIRAFAN INI DITANDATANGANI DAN AKAN TERBATAL JIKA PIHAK INSTITUSI MELANGGAR SYARAT-SYARAT YANG DITETAPKAN.

(Datuk Ir. Mohd. Annas bin Hj. Mohd. Nor)
Ketua Pengarah Bekalan Gas
Malaysia.

Tarikh : 4 Oktober 1999

Training and Courses

❖ Accredited Courses Organised by GASTEG:

- 1a.1) Gas Engineers and Gas Engineering Supervisors – GEGES
  - **673 Candidates – 36 Series**
- 1a.2) Gas Fitters Class I – GF I
  - **13 Candidates – 1 Serie**
- 1a.3) Gas Fitters Class II – GF II
  - **306 Candidates – 18 Series**
- 1a.4) Gas Fitters Class III – GF III
  - **343 Candidates – 29 Series**

Training and Courses

❖ Competent Candidates Produced by GASTEG:

- 1a.1) Gas Engineers and Gas Engineering Supervisors – GEGES
  - **Produced 175 Candidates**
- 1a.2) Gas Fitters Class I – GF I
  - **Produced 13 Candidates**
- 1a.3) Gas Fitters Class II – GF II
  - **Produced 135 Candidates**
- 1a.4) Gas Fitters Class III – GF III
  - **Produced 259 Candidates**

Training and Courses

❖ Industrially Active Competent Candidates:

- 1a.1) Gas Engineers – GE
  - **Produced 8 Candidates**
- 1a.1) Gas Engineering Supervisors – GES
  - **Produced 31 Candidates**
- 1a.2) Gas Fitters Class I – GF I
  - **Produced 24 Candidates**
- 1a.3) Gas Fitters Class II – GF II
  - **Produced 20 Candidates**
- 1a.4) Gas Fitters Class III – GF III
  - **Produced 14 Candidates**

UNIVERSITY TEKNOLOGI MALAYSIA

Malaysla's Premier University In Engineering and Technology

UNIVERSITY TEKNOLOGI MALAYSIA

Malaysla's Premier University In Engineering and Technology

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

INSPIRING CREATIVE AND INNOVATIVE MINDS

www.utm.my

GASTEG's PARTICIPATION IN PROFESSIONAL AND COMMUNITY EXHIBITION

UNIVERSITY TEKNOLOGI MALAYSIA

Malaysia's Premier University In Engineering and Technology


FLUID FLOW METER
IP: Patent Grant Number MY-129405-A
UTMost
MARKET POTENTIAL
ADVANTAGES
HADHARI AGRO HOLDING
SDN. BHD.
HADHARI AGRO HO
FLUID FLOW METER
HADHARI AGRO HOLDIN
SDN. BHD.
HADHAR

UNIVERSITY TEKNOLOGI MALAYSIA

Malaysla's Premier University In Engineering and Technology

UNIVERSITY TEKNOLOGI MALAYSIA

Malaysla's Premier University In Engineering and Technology

UNIVERSITY TEKNOLOGI MALAYSIA

Malaysla's Premier University In Engineering and Technology

UNIVERSITY TEKNOLOGI MALAYSIA

Malaysia's Premier University In Engineering and Technology

Research and Development

- Government Funded Research
- Private Funded Research Project
- Product Development
- ***Accumulated Grants ≈ RM 12 Million***

Expert Groups

Safety, Burner Design, Combustion Technology, Corrosion, Pipeline Design, Instrumentation and SCADA System, LNG, Storage, Software Development, Flow Metering, Gas Processing, Energy Management, Catalyst Technology, CFD, Risk Management, NGV, Renewable Energy and Green Technology, FPT Calibration

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

INSPIRING CREATIVE AND INNOVATIVE MINDS

www.utm.my

AWARDS AND RECOGNITION

Energy Awards -Training Institutional Awards: Energy Commission **2011**

Bronze Medal: Fluid Flow Meter -The 36th International Exhibition of Inventions, New Techniques & Products of Geneva, Switzerland **2008**

Final Nominee: Consultancy Awards – Universiti Teknologi Malaysia **2008**

Patents Award: Fluid Water Meter – MY-129405-A, March, 2007

Accredited Training Centre: Centre of Training and Examination for Gas Engineers and Gas Engineering Supervisors

Centre of Training and Examination for Gas Fitters - Department of Electrical and Gas Supply Malaysia **1999**

Most Attractive Booth: Industrial Art and Technology Exhibition (INATEX '99) – UTM, 1999

Certificate of Appreciation: Organization of National Gas Reticulation Industry Seminar and the launching of Safety Poster - From Department of Electrical and Ga Supply Malaysia **1999**

FKKKSA Award for Teamwork: Best achiever in teamworking for the year 1999 - Faculty of Chemical and Natural Resources Engineering, UTM **1999**

UNIVERSITI TEKNOLOGI MALAYSIA

SIJIL ANUGERAH KERJA BERKUMPULAN FKKKSA

Dengan sukacitanya Fakulti Kejuruteraan Kimia dan Kejuruteraan Sumber Asli menganugerahkan sijil penghargaan ini kepada

DR. ZULKEFLI BIN YAACOB (KETUA)

Di atas
PENCAPAIAN YANG BAIK DALAM KERJA BERKUMPULAN TAHUN 1999 - PUSAT TEKNOLOGI GAS (GASTEG)

PROF. MADYA DR. AHMAD KAMAL BIN IDRIS
Dekan

UNIVERSITI TEKNOLOGI MALAYSIA

PENGHARGAAN

Kami mengucapkan setinggi-tinggi penghargaan kepada

DR. ZULKEFLI YAACOB

Pemenang (Most Attractive Booth)
INDUSTRIAL ART AND TECHNOLOGY EXHIBITION (INATEX) '99

PROF. MADYA DR. AHMAD KAMAL BIN IDRIS
Dekan
Fakulti Kej. Kimia dan Kej. Sumber Asli
Universiti Teknologi Malaysia

11 November 1999

MyIPO

MALAYSIA

CERTIFICATE OF GRANT OF A PATENT

In accordance with Section 31(2) of the Patents Act 1983 a patent for an invention having grant number MY - 129405 - A has been granted to UNIVERSITI TEKNOLOGI MALAYSIA in respect of an invention having the following particulars :

TITLE	:	FLUID FLOW METER.
FILING DATE	:	15 AUGUST 1997
PRIORITY DATE	:	NONE
NAME OF INVENTOR	:	RAHMAT MOHSIN ZULKIFLI ABDUL MAJID
PATENT OWNER	:	UNIVERSITY TEKNOLOGI MALAYSIA : JALAN SEMARAK 54100 KUALA LUMPUR.
DATE OF GRANT	:	30 MARCH 2007

Dated this 30 day of MARCH 2007

(MOHD. AMRAN BIN ABAS)
for Registrar of Patents
MALAYSIA

DIPLÔME

SALON INTERNATIONAL DES INVENTIONS GENÈVE

Après examen, le Jury International a décidé

de remettre à: Assc. Prof.Dr. Rahmat MOHSIN

pour l'invention: Compteur du flux d'un fluide

MÉDAILLE DE BRONZE
BRONZE MEDAL
BRONZEMEDAILLE

Genève, le 4 avril 2008

Le Président du Jury: David Taji

Le Président du Salon: Jean-Luc Vincent

UNIVERSITY TEKNOLOGI MALAYSIA

Malaysia's Premier University In Engineering and Technology


Energy Industry
Award 2011

UTM
UNIVERSITI TEKNOLOGI MALAYSIA

INSPIRING CREATIVE AND INNOVATIVE MINDS

www.utm.my

GASTEG's PUBLICATIONS

GASTEG's INTERNATIONAL PUBLICATIONS

BIOMASS AND BIOENERGY 35 (2011) 1182–1189

Available at www.sciencedirect.com

ScienceDirect

http://www.elsevier.com/locate/biombioe

Influence of fast pyrolysis temperature on biochar labile fraction and short-term carbon loss in a loamy soil

Esben W. Bruun [a,*], Henrik Hauggaard-Nielsen [a], Norazana Ibrahim [b,c], Helge Egsgaard [a], Per Ambus [a], Peter A. Jensen [b], Kim Dam-Johansen [b]

[a] Biosystems Division, Risø National Laboratory for Sustainable Energy, Technical University of Denmark, DK-4000 Roskilde, Denmark
[b] Chemical Engineering and Biochemical Engineering, Technical University of Denmark, DK-2800 Lyngby, Denmark
[c] Department of Gas engineering, Faculty of Petroleum and Renewable Energy Engineering, Universiti Teknologi Malaysia, 81310 UTM Skudai, Malaysia

ARTICLE INFO

Article history:
Received 8 July 2010
Received in revised form
29 November 2010
Accepted 6 December 2010
Available online 30 December 2010

Keywords:
Biochar
Charcoal
Carbon sequestration
Biochar stability
Pyrolysis centrifuge reactor
Triticum aestivum

ABSTRACT

Production of bio-oil, gas and biochar from pyrolysis of biomass is considered a promising technology for combined production of bioenergy and recalcitrant carbon (C) suitable for sequestration in soil. Using a fast pyrolysis centrifuge reactor (PCR) the present study investigated the relation between fast pyrolysis of wheat straw at different reactor temperatures and the short-term degradability of biochar in soil. After 115 days incubation 3–12% of the added biochar-C had been emitted as CO_2. On average, 90% of the total biochar-C loss occurred within the first 20 days of the experiment, emphasizing the importance of knowing the biochar labile fraction when evaluating a specific biochars C sequestration potential. The pyrolysis temperature influenced the outputs of biochar, bio-oil and syngas significantly, as well as the stability of the biochar produced. Contrary to slow pyrolysis a fast pyrolysis process may result in incomplete conversion of biomass due to limitations to heat transfer and kinetics. In our case chemical analysis of the biochars revealed unconverted cellulosic and hemicellulosic fractions, which in turn were found to be proportional with the short-term biochar degradation in soil. As these labile carbohydrates are rapidly mineralized, their presence lowers the biochar-C sequestration potential. By raising the pyrolysis temperature, biochar with none or low contents of these fractions can be produced, but this will be on the expense of the biochar quantity. The yield of CO_2 neutral bio-oil is the other factor to optimize when adjusting the pyrolysis temperature settings to give the overall greatest climate change mitigation effect.

1. Introduction

Replacing fossil fuel energy production can be obtained by renewable sources such as wind, solar energy or biomass. Another climate change mitigation option is to sequester carbon in soil by application of biochar (charcoal) produced by pyrolysis of plant biomass [1]. Because of biochars recalcitrant nature, only a very slow release of the biochar-C occurs, resulting in a long-term removal of C from the atmosphere. In addition, pyrolysis of biomass generates a bio-oil and a syngas, which can be used to replace fossil fuels e.g. by using the bio-oil as fuel in power plants and the gas to provide heat for the pyrolysis process. Combining these three pyrolysis outputs renders the whole process not only carbon neutral,

* Corresponding author. Tel.: +45 60600721.
E-mail address: esbr@risoe.dtu.dk (E.W. Bruun).
0961-9534/$ – see front matter © 2010 Elsevier Ltd. All rights reserved.
doi:10.1016/j.biombioe.2010.12.008

Engineering Failure Analysis 17 (2010) 818–837

Contents lists available at ScienceDirect

Engineering Failure Analysis

journal homepage: www.elsevier.com/locate/engfailanal

Failure analysis of natural gas pipes

Z.A. Majid [a,*], R. Mohsin [a], Z. Yaacob [a], Z. Hassan [b]

[a] Gas Technology Centre, Universiti Teknologi Malaysia, 81310 Johor, Malaysia
[b] Faculty of Chemical & Natural Resources Engineering, Universiti Malaysia Pahang, 26300 Pahang, Malaysia

ARTICLE INFO

Article history:
Received 15 July 2009
Accepted 9 October 2009
Available online 15 October 2009

Keywords:
Pipeline
Slurry erosion
Erosion-corrosion
Natural gas pipe
Failure analysis

ABSTRACT

Incident involving failures of 6 months old API 5L X42 (MPSR) and SDR 17, 125 mm medium density polyethylene pipe (MDPE) supplying natural gas to an industrial customer has caused serious 7 h supply disruption. Study was performed to identify the most probable cause of the pipes failures. The study conducted by reviewing the existing design and construction data, visual physical inspection, pipe material analysis, structural analysis using NASTRAN and Computational Fluid Dynamics analysis (CFD) using FLUENT. Investigations revealed that high pressure water jet from leaked water pipe had completely mixed with surrounding soil forming water soil slurry (high erosive properties) formed at a close vicinity of these pipes. Continuous impaction of this slurry upon the API 5L X42 pipe surface had caused losses of the pipe coating materials. Corrosion quickly ensued and material loss was rapid because of the continuous erosion of oxidised material that occurred simultaneously. This phenomenon explains the rapid thinning of the steel pipe body which later led to its failure. Metallurgical study using photomicrograph shows that the morphology of the steel material was consistent and did not show any evidence of internal corrosion or micro fractures. The structural and CFD simulation results proved that the location, rate and the extent of erosion failures on the pipe surfaces can be well predicted, as compared with actual instances.

1. Introduction

Cases involving failure of pipes carrying highly combustible fuel such as natural gas are rarely reported. High pressure natural gas transmission pipeline (API 5L X60) in northern part Pakistan [1] and a T-shape natural gas pipeline network (API 5L X52) near gas extraction plant in northern Mexico [2] are two examples of such cases. In both cases the material degradation causes by corrosion is the main factor that contribute to the failure of the pipes. Another example of a similar pipes but carrying liquid fuel that has failed are the 52 km 16″ (406.4 mm) pipe (API 5LX52) in Kuwait [3] and the API 5LX46 pipe in Brazil [4]. Delayed cracking and transverse cracking has been identified as a reason for the pipes to fail.

A case involving the failure of natural gas pipes adjacent to water is yet to be reported. A leak of high pressure water pipe in a mixture of soil and sand can create an erosive slurry impact on nearby pipes. Slurry erosion will form by the interaction of solid particles suspended in liquid and a surface which experience losses of mass by repeated impacts of particles [5]. This type of erosion has been reported as the major source of failure of many engineering equipment such as slurry equipment and hydraulic components [6–8].

This erosive slurry impact will cause metal loss or metal thinning and eventually lead to the pipe failure [5]. This event could trigger much disastrous incident involving fire and explosion which could cause loses in term of life and economics [9,10].

* Corresponding author. Tel.: +60 7 5535574; fax: +60 7 5545667.
E-mail address: zulmajid@fkkksa.utm.my (Z.A. Majid).

1350-6307/$ – see front matter © 2009 Elsevier Ltd. All rights reserved.
doi: 10.1016/j.engfailanal.2009.10.016

COMPLIMENTARY

MALAYSIAN STANDARD

MS 1535 : PART 3 : 2002

DOMESTIC GAS COOKING APPLIANCES FOR USE WITH LIQUEFIED PETROLEUM GASES :
PART 3 : TEST METHODS

MS 1535 : PART 3 : 2002

Committee representation

The Mechanical Engineering Industry Standards Committee (ISC F) under whose supervision this Malaysian Standard was developed, comprises representatives from the following organisations:

Association of Consulting Engineers Malaysia
Department of Standards Malaysia
Federation of Malaysian Manufacturers
Malaysian Industrial Development Authority
Malaysian Motor Vehicle Assemblers Association
Ministry of Defence
Ministry of Human Resources (Department of Occupational Safety and Health)
Ministry of Works (Public Work Department)
The Institution of Engineers, Malaysia
Universiti Malaya
UNIVERSITI TEKNOLOGI MALAYSIA

The Technical Committee on Gas Cooking Appliances which developed this Malaysian Standard consists of representatives from the following organisations:

Department
Fimaco Sdn
GM Industrie
Hata Industri
Kee Huat Ind
KUB Gas Sd
Matsushita E
SIRIM Berha
SIRIM QAS
SIRIM QAS
T.H. Hin Hom
The Institute
UNIVERSITI
Unity Gas Ap

COMPLIMENTARY

MALAYSIAN STANDARD

MS 1535 : PART 1 : 2002

DOMESTIC GAS COOKING APPLIANCES FOR USE WITH LIQUEFIED PETROLEUM GASES :
PART 1 : SPECIFICATION

ICS : 97.040.20

Descriptors : cooking appliances, domestic, liquefied petroleum gases, specification

© Copyright

DEPARTMENT OF STANDARDS MALAYSIA

MS 1535 : PART 1 : 2002

Committee representation

The Mechanical Engineering Industry Standards Committee (ISC F) under whose supervision this Malaysian Standard was developed, comprises representatives from the following organisations:

Association of Consulting Engineers Malaysia
Department of Standards Malaysia
Federation of Malaysian Manufacturers
Malaysian Industrial Development Authority
Malaysian Motor Vehicle Assemblers Association
Ministry of Defence
Ministry of Human Resources (Department of Occupational Safety and Health)
Ministry of Works (Public Work Department)
The Institution of Engineers, Malaysia
Universiti Malaya
UNIVERSITI TEKNOLOGI MALAYSIA

The Technical Committee on Gas Cooking Appliances which developed this Malaysian Standard consists of representatives from the following organisations:

Department of Electricity and Gas Supply
Fimaco Sdn Bhd
GM Industries Sdn Bhd
Hata Industries Sdn Bhd
Kee Huat Industries Berhad
KUB Gas Sdn. Bhd
Matsushita Electric Co., (M) Bhd
SIRIM Berhad (Secretariat)
SIRIM QAS Sdn. Bhd (Mechanical Product Testing Section)
SIRIM QAS Sdn. Bhd (Product Certification Unit)
T.H. Hin Home Tech Sdn. Bhd
The Institution of Engineers, Malaysia
UNIVERSITI TEKNOLOGI MALAYSIA
Unity Gas Appliances (M) Sdn. Bhd.

iii

COMPLIMENTARY

MALAYSIAN STANDARD

MS 1535 : PART 2 : 2002

DOMESTIC GAS COOKING APPLIANCES FOR USE WITH LIQUEFIED PETROLEUM GASES :
PART 2 : GENERAL CONSTRUCTION

ICS : 97.040.20

Descriptors : cooking appliances, domestic, liquefied petroleum gases, construction

© Copyright

DEPARTMENT OF STANDARDS MALAYSIA

MS 1535 : PART 2 : 2002

Committee representation

The Mechanical Engineering Industry Standards Committee (ISC F) under whose supervision this Malaysian Standard was developed, comprises representatives from the following organisations:

Association of Consulting Engineers Malaysia
Department of Standards Malaysia
Federation of Malaysian Manufacturers
Malaysian Industrial Development Authority
Malaysian Motor Vehicle Assemblers Association
Ministry of Defence
Ministry of Human Resources (Department of Occupational Safety and Health)
Ministry of Works (Public Work Department)
The Institution of Engineers, Malaysia
Universiti Malaya
UNIVERSITI TEKNOLOGI MALAYSIA

The Technical Committee on Gas Cooking Appliances which developed this Malaysian Standard consists of representatives from the following organisations:

Department of Electricity and Gas Supply
Fimaco Sdn Bhd
GM Industries Sdn Bhd
Hata Industries Sdn Bhd
Kee Huat Industries Berhad
KUB Gas Sdn. Bhd
Matsushita Electric Co., (M) Bhd
SIRIM Berhad (Secretariat)
SIRIM QAS Sdn. Bhd (Mechanical Product Testing Section)
SIRIM QAS Sdn. Bhd (Product Certification Unit)
T.H. Hin Home Tech Sdn. Bhd
The Institution of Engineers, Malaysia
UNIVERSITI TEKNOLOGI MALAYSIA
Unity Gas Appliances (M) Sdn. Bhd

ii

No	Sample Listing of Products and Prototypes
1	Semi Positive Water Meter - Patent Granted (2007) MY-129405-A
2	Domestic Diaphragm Gas Meter G25
3	Fuel System For Natural Gas Motorcycle
4	Natural Gas Mixer For Natural Gas Motorcycle
5	Network Analysis Software – SimGas©, GasNett ©
6	Gas Storage Design Tools – GaSTOR©
7	“Burner Conversion” Design Tools - FABIS ©
8	GASTEG Website Set 1 and Set 2 (2000-2006)
9	SMK Taman Desa Skudai Website (2006-2007)
10	Gas Department Website (2003-2006)
11	Single Step Pressure Regulator for NGVM

Service and Consultancy

No	List of Consultancy Works
1	Determination of Hydrogen Sulfide Content in Malaysian Natural Gas and Liquefied Petroleum Gas (2000), Copper Development Centre (CDC), South East Asia
2	Physical and Observational Check of Various Safety Product (2001), Hijau Baiduri Sdn. Bhd.
3	Gas Network Analysis for Natural Gas Piping System at Clay Industries Sdn. Bhd., Clay Industries Sdn. Bhd. and Mutrapac Sdn. Bhd
4	LPG to Natural Gas Burner Conversion for Clay Industries Sdn. Bhd. Air Hitam Factory, Mutrapac Sdn. Bhd.
5	Pipeline Breakages Incident Investigation, Phase 1 (February – April 2006), Gas Malaysia Sdn. Bhd. (GMSB)
6	Research On Physical and Chemical Properties of Ethylene (C_2H_4) – Diversified Intelligence Sdn. Bhd. [2007]
7	Pipeline Breakages Incident Investigation, Phase 2 (Julai 2006 – Mac 2007), Gas Malaysia Sdn. Bhd. (GMSB)
8	Pipeline Breakages Incident Investigation, Phase 3 (February 2010 – Jun 2011), Gas Malaysia Sdn. Bhd. (GMSB)

Seminars and Workshops

No	List of Seminars and Workshops
1	Seminar Perundangan & Keselamatan Gas, Hotel Sofitel, Senai, Johor , 6 April 1999.
2	Seminar Perundangan & Keselamatan Retikulasi Gas, Hotel Equatorial Pulau Pinang, 25 May 1999
3	Seminar 'Opportunities of Entrepreneur in the Gas Industry', Dewan Menara, KOMTAR, Johor Bahru, 19 June 1999.
4	Seminar Perundangan & Keselamatan Retikulasi Gas, Hotel MS Garden, Kuantan, 18 Nov. 1999.
5	Seminar Perundangan & Keselamatan Retikulasi Gas, Kota Kinabalu, Sabah, 26 Jun 2000.
6	Seminar 'Introduction of Alternative Material for Gas Reticulation', PWTC, Kuala Lumpur, 2 November 2000.
7	'MGA Technical Conference 2000 on The Life Cycle Development of Gas Pipeline', Hotel Shangri-La, Kuala Lumpur, 7-8 November 2000.
8	Seminar Retikulasi Gas, Ipoh, 20th August 2001
9	"*Overview of MS 930, Bengkel MS 930 dan MS 930 : Maklumbalas Industri"*, Shah Alam, 12th November 2001
10	Safety Awareness, Relevent Acts and Regulations for Natural Gas and LPG Utilisation, 8 Sep 2005
11	"Sifat-Sifat dan Risiko Keselamatan penggunaan LPG di Sekolah-Sekolah', Grand Season Hotel, Seminar Sehari Keselamatan LPG untuk Jabatan Pendidikan Kuala Lumpur, 28 Sep. 2005

UNIVERSITY TEKNOLOGI MALAYSIA

Malaysla's Premier University In Engineering and Technology

UNIVERSITY TEKNOLOGI MALAYSIA

Malaysla's Premier University In Engineering and Technology

PUSAT TEKNOLOGI

This lab provides services and facilities for cali
temperature systems as well as fluid flow studies w
metering technology. Other services provided are
gas meter servicing and calibration, performance of
and control valves and gas flow characterisation. Tl
with complete computer system facilities and temper

Gasteg, with the cooperation of Gas
and advanced level labs to assist stu
academic work. These labs, which ar
Engineering Department, plays an im
development in the gas field. *The fiv*

Gas Engineering Departmen

Faculty of Chemical and Natural Resources Engineering, UT

Academic | Organization | Facilities | Consultancy | Research Areas

- Courses offered
- Entry Requirements
- Curriculum and Syllabus
- Subject : Pre-requisite
- Learning Outcomes

- Organizational Structure
- Staff Member
- Individual CV's
- Industrial Advisor
- Industrial Partnership

- Gas system Laboratory
- Gas testing and Utilization Laboratory
- Calibration Laboratory
- Combustion Laboratory

- Field of Expert
- Consultancy Profile

- Graduate Faculty
- List of Awards
- List of Current Research Projects

:: Links to page:

- Gas Systems Lab.
- Gas Testing and Utilisation Lab.
- Calibration Lab.
- Combustion Lab.
- Gas Research Lab.

Facilities

Gas Testing and Utilisation Laboratory

Introduction :

Special Requirement for the offered Program
1. Pass SPM/equivalent with distinction in Additional Mathematics
2. Pass with at least Grade C in Additional Mathematics, Advanced Mathematics, Physics and Chemistry
3. Candidate is not colour blind and physically disabled that can give difficulties in the laboratory work

UNIVERSITY TEKNOLOGI MALAYSIA

Malaysia's Premier University In Engineering and Technology


PUSAT TEKNOLOGI GAS (GASTEG)
UNIVERSITI TEKNOLOGI MALAYSIA
UTM SKUDAI, JOHOR
Aktiviti Kami
Lokasi Pengajaran
Pengiktirafan
Latihan yang Dijalankan
Laman Utama
Unit Latihan & Informasi
Unit Penyelidikan & Pembangunan
Pautan
Unit Latihan dan Informasi | Profil Unit
Unit Latihan dan Informasi diwujudkan bagi menyediakan latihan untuk tenaga k
terlibat dalam industri gas di Malaysia. Latihan yang disediakan adalah meliputi
berkala yang menjurus kepada taraf kekompetenan dengan JBEG. Kursus-kursu
seperti Kursus Keselamatan Gas, Kursus Rekabentuk (NG, GPC), Kursus Reka
dan lain-lain yang dirangka menurut keperluan semasa industri.
Info Laman Web
Web Team
Memo Pengarah
Soalan Lazim
Maklumat peserta kursus
Satu sesi taklimat akan diadakan pada:
Kursus Pengagihan Gas untuk Jurutera dan
Auditorium IBS, Universiti Teknologi Malaysia, Kuala
17 Julai 2004.
8.00 Malam.
Menu utama
Profil GASTEG
Organisasi
Lokasi GASTEG
Download borang
Artikel Minyak & Gas
Jurugegas Gas
Tempat belum ditentukan
17 Julai 2004
Masa belum ditentukan
Orang yang bertanggungjawab
Tempat belum ditentukan
17 Julai 2004
Masa belum ditentukan
Kepada sesiapa yang belum mendaftar tetapi berminat untuk mengikuti kursus
yang dijalankan bolehlah menghadiri sesi taklimat pada masa tersebut.
Sekian, terima kasih
Unit Penyelidikan | Profil unit
Penyelidikan adalah salah satu aktiviti penting bagi sesebuah pusat kecem
penyelidikan penemuan baru dalam teknologi tidak titemui, begitu juga tek
akan dapat berkembang. Menyedari kepentingan penyelidikan serta hasrat
menjadi'Universiti Penemuan' GASTEG telah mengorak langkah menjalank
dalam beberapa bidang yang menjadi keuutamaan UTM dan juga negara.
Penyelidikan ini dijalankan oleh para penyelidik UTM dan dibantu oleh tena
yang berkaitan. Sehingga kini, GASTEG mempunyai hubungan penyelidika
PETRONAS Research Institute and Services Sdn. Bhd (PRSS), MODENA
Sdn. Bhd, Gas Malaysia Sdn. Bhd dan lain-lain syarikat swasta.
Pusat Teknologi Gas (GASTEG) yang peka dan sentiasa proaktif dalam as
mengorak langkah dengan mewujudkan Unit Penyelidikan dan Perundingan
Pusat Teknologi Gas, Fakulti Kejuruteraan Kimia dan Kejuruteraan Sumber Asl, Universiti Teknologi Malaysia, 81310 UTM Skudai
Telefon : 07-5535653, Fax : 07-5545667, Laman web rasmi : www.utm.my/gasteg

Information Dissemination

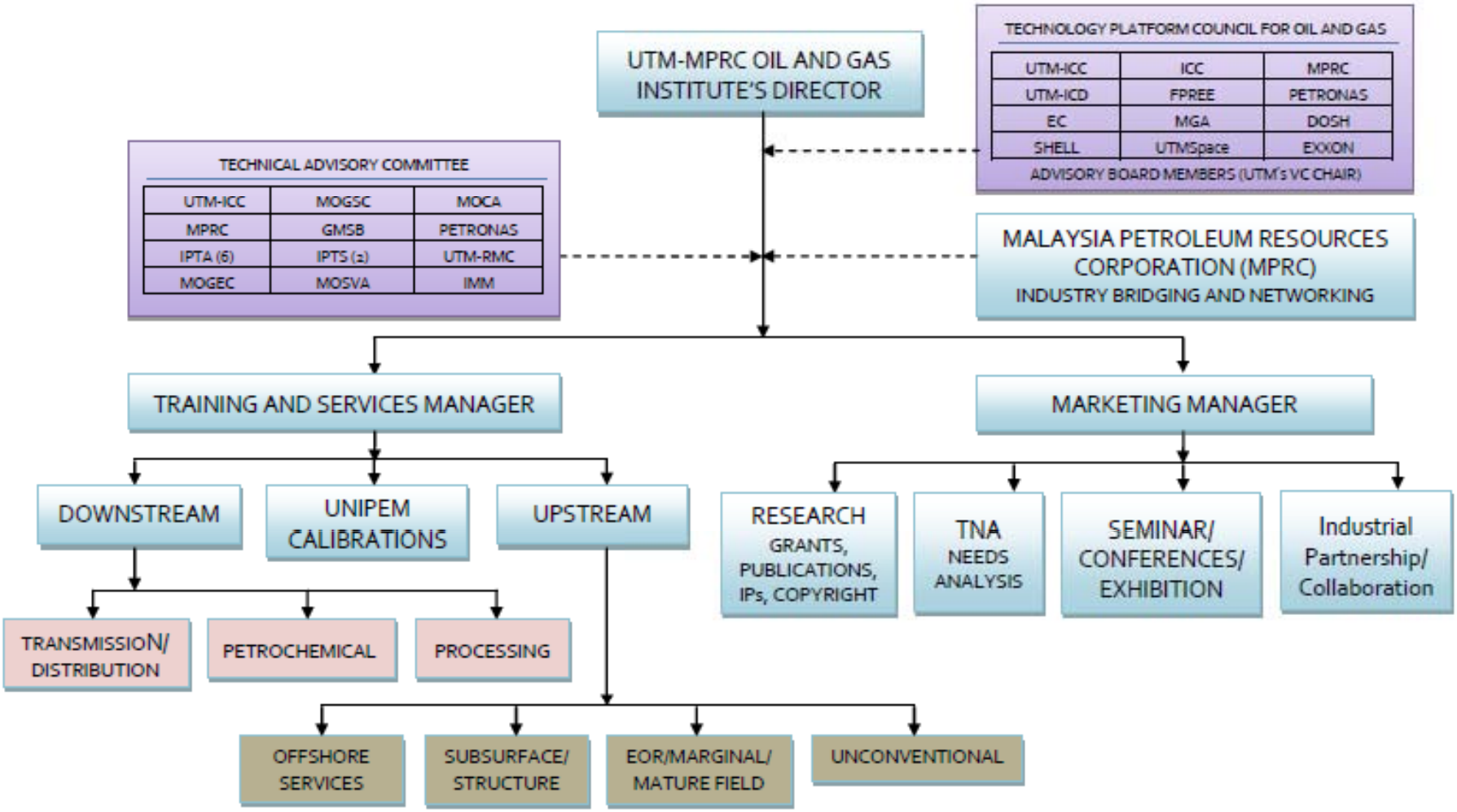
1. Extensive Data Base for Appropriate Areas
2. Product and Technical Bulletin
3. Publishing Academic Up-to-Date Articles
4. Promoting Interactive, User Friendly Website
5. Dedicated and Secured Server
6. Advertisement through the Website

Transformation

1. In line with talent development services UTM has been awarded the “Hub University for Oil & Gas Sector” under the Industry Centre of Excellence (ICoE) Scheme at a National Level
2. GASTEG is currently being upgraded to an institute known as “UTM-MPRC Institute for Oil and Gas”
3. The UTM Senate had approved the establishment of UTM-MPRC Institute for Oil and Gas on the 19th April, 2013
4. The major activity aimed for the institute will remain in the following sectors:
   - Talent Development via Professional Trainings
   - Research and Innovation via Research Grants
   - Consultancy and Services via Accredited Laboratory Services and Consultancy
5. The UTM will foster close relationship with relevant industries to nurture local products of international recognition

Conclusion

1. UTM-MPRC Institute for Oil and Gas will remain as the driven mechanism to nurture, inculcate, and forge global networking within academic communities and its industrial partners
2. UTM-MPRC Institute for Oil and Gas succeeded in fostering close relationship with various parties involved in the gas industry in Malaysia. This relationship had managed to generate smart partnership with the energy industries
3. UTM-MPRC Institute for Oil and Gas has been and will remain as a reference center for the gas industry with regard to its training, R & D, technical services, consultancies and critical knowledge provider in gas technology
4. Funding is of utmost important in succeeding the implementation of UTM-MPRC Institute for Oil and Gas activities. Buildings for housing the training, service and consultancy, research and ICT facilities are crucial in the fulfilling of the set forth objectives.


UTM-MPRC OIL AND GAS INSTITUTE'S DIRECTOR
TECHNOLOGY PLATFORM COUNCIL FOR OIL AND GAS
UTM-ICC | ICC | MPRC
UTM-ICD | FPREE | PETRONAS
EC | MGA | DOSH
SHELL | UTMSpace | EXXON
ADVISORY BOARD MEMBERS (UTM's VC CHAIR)
TECHNICAL ADVISORY COMMITTEE
UTM-ICC | MOGSC | MOCA
MPRC | GMSB | PETRONAS
IPTA (6) | IPTS (2) | UTM-RMC
MOGEC | MOSVA | IMM
MALAYSIA PETROLEUM RESOURCES CORPORATION (MPRC)
INDUSTRY BRIDGING AND NETWORKING
TRAINING AND SERVICES MANAGER
MARKETING MANAGER
DOWNSTREAM
UNIPEM CALIBRATIONS
UPSTREAM
RESEARCH
GRANTS, PUBLICATIONS, IPs, COPYRIGHT
TNA
NEEDS ANALYSIS
SEMINAR/ CONFERENCES/ EXHIBITION
Industrial Partnership/ Collaboration
TRANSMISSION/ DISTRIBUTION
PETROCHEMICAL
PROCESSING
OFFSHORE SERVICES
SUBSURFACE/ STRUCTURE
EOR/MARGINAL/ MATURE FIELD
UNCONVENTIONAL

UNIVERSITY TEKNOLOGI MALAYSIA

Malaysla's Premier University In Engineering and Technology

Thank You

Visit GASTEG's website at http://gasteg.com