nationalgrid

SAFETY DATA SHEET
NATURAL GAS

1. IDENTIFICATION OF THE SUBSTANCE / PREPARATION AND THE COMPANY

PRODUCT NAME:	Natural gas
SYNONYMS, TRADE NAMES:	Compressed Natural Gas
SUPPLIER:	National Grid plc NG House Warwick Technology Park Gallows Hill Warwick CV34 6DA
SUPPLY METHOD:	This data sheet is for natural gas supplied via a pipeline distribution system. Within the UK the following gas pressures may be found: National Transmission System - 70 to 85bar Distribution Network – 7 to 70bar Local distribution – 75mbar to 7bar
NORMAL CONDITIONS OF USAGE:	This data sheet assumes that natural gas is taken from the pipeline distribution system using only appliances and other equipment intended to be used with natural gas. These appliances should be purpose designed and built to recognized safety standards, be properly adjusted and kept serviced, be installed in adequately ventilated locations and supplied with the necessary flueing systems or other means of disposal of combustion products.
EMERGENCY TELEPHONES:	0800 111999

2. COMPOSITION / INFORMATION ON INGREDIENTS

COMPOSITION COMMENTS: The composition of natural gas is complex and variable therefore the characteristics are based on the major component, which is methane.

INGREDIENT NAME	CAS No	EC No	CONTENTS (% vol/vol)	RISK (R No)
METHANE	74-82-8	200-812-7	82 – 97	R12
ETHANE	74-84-0	200-814-8	2.8 – 10.2	R12
NITROGEN	7727-37-9	231-783-9	0.1 – 7.7	
PROPANE	74-98-6	200-827-9	0.1 – 3.7	R12
CARBON DIOXIDE	124-38-9	204-696-9	0 – 4	
ISO BUTANE	75-28-5	200-857-2	0.01 – 0.44	R12
N BUTANE	106-97-8	203-448-7	0.01 – 0.75	R12
NEO PENTANE	463-82-1	207-343-7	0 – 0.055	R12
ISO PENTANE	78-78-4	201-142-8	0 – 0.25	R65, R66, R67, R12
N PENTANE	109-66-0	203-692-4	0 – 0.17	R65, R66, R67, R12
N HEXANE	110-54-3	203-777-6	0 – 0.015	R38, R65, R67, R11
BENZENE	71-43-2	200-753-7	0 – 0.015	R45, R48/23/24/25, R11
CYCLOHEXANE	110-82-7	203-806-2	0 – 0.0015	R38, R65, R67, R11
TOLUENE	108-88-3	203-625-9	0 – 0.001	R20, R11
XYLENES (COMBINED ISOMERS)	1330-20-7	215-535-7	0 – 0.001	R20/21, R38, R10
HYDROGEN SULPHIDE	7783-06-4	231-977-3	0 – 0.0003	R26, R12
ETHYL MERCAPTAN	75-08-1	200-837-3	0 – 0.00002	R20, R12
TERTIARY BUTYL MERCAPTAN	75-66-1	200-890-2	0 – 0.00013	R20, R36, R11
DIMETHYL SULPHIDE	75-18-3	200-846-2	0 – 0.00004	R22, R36, R11
DI-ETHYL SULPHIDE	352-93-2	206-526-9	0 – 0.0001	R11
METHYL ETHYL SULPHIDE	624-89-5	210-868-4	0 – 0.00002	R11
MONO ETHYLENE GLYCOL	107-21-1	203-473-3	0 – 0.01	R22
PETROLEUM DISTILLATE			0 – 0.0003	R45

Explanations of Risk No's are found in Section 16, Other Information.

3. HAZARD INDENTIFICATION

Natural gas is extremely flammable forming a flammable mixture at a concentration of 5% gas in air (by volume). Therefore, the most likely hazard from natural gas exposure is fire.

Gas supply may be at high pressure, up to 85bar (see Section 1)

4. FIRST AID MEASURES

GENERAL: NOTE: Keep affected person away from heat, sparks and flames.

CAUTION: First aid personnel must be aware of own risk during rescue.

Move the exposed person to fresh air at once.

INHALATION: Move exposed person to fresh air at once. Get prompt medical attention. Perform artificial respiration if breathing has stopped. When breathing is difficult, properly trained personnel may assist affected person by administering 100% oxygen. Keep the affected person warm and at rest.

SKIN: Promptly stop exposure.

5. FIRE FIGHTING MEASURES

EXTINGUISHING MEDIA: Fire can be extinguished using – water spray, fog or mist; foam or carbon dioxide (CO2); dry chemical or sand, dolomite etc.

SPECIAL FIRE FIGHTING PROCEDURES: In the event of a fire, steps should be taken to shut off the gas supply and the local fire brigade and supplier informed.

UNUSUAL FIRE & EXPLOSION HAZARDS: Extremely flammable. May re-ignite after fire is extinguished.

HAZARDOUS COMBUSTION PRODUCTS: Carbon dioxide (CO_2) and carbon monoxide (CO).

PROTECTIVE MEASURES IN FIRE: Protective clothing and pressure-demand breathing apparatus.

6. ACCIDENTAL RELEASE MEASURES

PERSONAL PRECAUTIONS: In the event of a gas leak, the supply should be shut off, the area ventilated and the local supplier informed. Electrical switches should not be turned on or off, portable electrical apparatus including had held torches should not be operated and all other possible sources of ignition removed or rendered inoperable. In circumstances of excessive leakage the building should be evacuated

ENVIRONMENTAL PRECAUTIONS: Prevent product from escaping into the environment.

SPILL CLEAN UP METHODS: Stop leak if possible without risk. Ventilate area.

7. HANDLING AND STORAGE

USAGE PRECAUTIONS: Appliances and other equipment intended to be used with natural gas should be purpose designed and built to recognized safety standards, be properly adjusted and kept serviced, be installed in adequately ventilated locations and supplied with the necessary flueing systems or other means of disposal of combustion products.

Lack of adequate ventilation and/or leakage of combustion products into the workspace may give rise to carbon monoxide poisoning. In the event, effected personnel should be evacuated from the area and medical advice sought.

STORAGE PRECAUTIONS: Not applicable. Storage at supplier's premises only. Product supplied to customer in piped gas distribution system.

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION

INGREDIENT NAME	CAS No.	OCCUPATIONAL EXPOSURE STANDARD (in UK)	
		LONG-TERM EXPOSURE (8-HOUR TWA)	SHORT-TERM EXPOSURE (15 MINUTES)
METHANE	74-82-8		
ETHANE	74-84-0	none	none
NITROGEN	7727-37-9		
PROPANE	74-98-6		
CARBON DIOXIDE	124-38-9	0.5 %	1.5 %
ISO BUTANE	75-28-5	0.06 %	0.075 %
N BUTANE	106-97-8	(combined butanes)	(combined butanes)
NEO PENTANE	463-82-1		
ISO PENTANE	78-78-4	none	none
N PENTANE	109-66-0		
N HEXANE	110-54-3	0.002 %	-
BENZENE	71-43-2	0.0001 % max exposure limit	-
CYCLOHEXANE	110-82-7	0.001 %	0.003 %
TOLUENE	108-88-3	0.005 %	0.015 %
XYLENES (COMBINED ISOMERS)	1330-20-7	0.005 %	0.01 %
HYDROGEN SULPHIDE	7783-06-4	0.0005 %	0.001 %
ETHYL MERCAPTAN	75-08-1	0.00005 %	0.0002 %
TERTIARY BUTYL MERCAPTAN	75-66-1	none	none
DIMETHYL SULPHIDE	75-18-3		
DI-ETHYL SULPHIDE	352-93-2		

INGREDIENT NAME	CAS No.	OCCUPATIONAL EXPOSURE STANDARD (in UK)	
		LONG-TERM EXPOSURE (8-HOUR TWA)	SHORT-TERM EXPOSURE (15 MINUTES)
METHYL ETHYL SULPHIDE	624-89-5		
MONO ETHYLENE GLYCOL	107-21-1	52 mg m^{-3}	104 mg m^{-3}
PETROLEUM DISTILLATE		none	none

INGREDIENT COMMENTS: Natural gas in air will form a flammable mixture before the concentration levels in the above table are reached with the exception of benzene. Therefore, the most likely hazard from natural gas exposure is fire. Prolonged exposure to natural gas should be avoided.

VENTILATION: Product is supplied via pipeline installation; ventilation is required only in case of spillage or fire.

RESPIRATORS: Under normal conditions of usage, see Section 1, respiratory protection is not required. If gas concentration reaches 1% gas in air or above a suitable respirator should be used.

PROTECTIVE GLOVES: Under normal conditions of usage protective gloves are not required.

EYE PROTECTION: Under normal working conditions eye protection is not required.

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:	Gas
COLOUR:	Colourless
ODOUR/TASTE:	Below 7bar - characteristic gas smell Above 7bar - odorant may not be added, so gas may have no smell or may smell faintly of hydrocarbons
SOLUBILITY DESCRIPTION:	Soluble in water. Soluble in alcohol, ether, most organic solvents
SOLUBILITY VALUE (g/100g H2O 20 °C):	0.0026
MOL. WEIGHT (AT WT):	16
BOILING POINT (°C):	-161 at 760mm Hg
MELT/FREEZ. POINT (°C):	-183
RELATIVE DENSITY	0.65 @ 20°C
FLASH POINT:	-222 METHOD: CC (Closed Cup)
AUTO IGNITION TEMP. (°C)	560

FLAMMABILITY LIMIT – LOWER (%)	5
FLAMMABILITY LIMIT – UPPER (%)	15

10. STABILITY AND REACTIVITY

STABILITY:	Stable under ambient conditions
CONDITIONS TO AVOID:	Avoid heat, flames and other sources of ignition
MATERIALS TO AVOID:	Avoid contact with oxidizing materials and halogens
HAZARDOUS DECOMPOSITION PRODUCTS:	Carbon Dioxide (CO_2) and Carbon Monoxide (CO)

11. TOXICOLOGICAL INFORMATION

(post-combustion toxicological info?)

INHALATION:	Short-term exposure may cause headaches, dizziness, drowsiness, nausea and vomiting. High vapour concentration may lead to unconsciousness due to absence of oxygen. Long-term exposure may cause cancer or other serious damage to health.
SKIN:	Not expected to be a health risk via this route
EYES:	Not expected to be a health risk via this route
INGESTION:	Not expected to be a health risk via this route.
HEALTH WARNINGS:	Gas or vapour displaces oxygen available for breathing leading to asphyxia.
ROUTE OF ENTRY:	Inhalation
MEDICAL SYMPTOMS:	Short-term exposure: Upper respiratory irritation. Dizziness. High vapour concentration may cause suffocation. Cyanosis (blue tissue conditions, nails, lips and/or skin). Unconsciousness, possible death.

use document
European Doc:
EH 140

12. ECOLOGICAL INFORMATION

Not regarded as dangerous for any part of the local environment; including air, water, soil or ozone layer. Methane emissions contribute to global warming.

13. DISPOSAL CONSIDERATIONS

Not applicable to product as supplied on piped distribution system, but care must be taken to ensure adequate ventilation and/or flueing facilities from appliances to remove combustion products.

14. TRANSPORT INFORMATION

LABEL FOR CONVEYANCE:	Extremely flammable gas – red diamond with a flame symbol
GENERAL:	Transport data is given for further information. Pipeline gas distribution systems are not subject to conveyance regulations.
ROAD TRANSPORT:	
UN No ROAD:	1971
ADR CLASS No:	Class 2: Gases. Division 2.1: Flammable gases
ADR CLASS:	2
ADR ITEM No:	2(b)
HAZARD No (ADR):	23 Flammable gas
ADR MARGINAL:	2201
ADR LABEL No:	2.1
HAZCHEM CODE:	2(S)E
CEFIC TEC(R) No:	20G04
PROPER SHIPPING NAME:	METHANE, COMPRESSED or NATURAL GAS, COMPRESSED with high methane content
RAIL TRANSPORT:	
RID CLASS No:	2
RID ITEM No:	2(b)
SEA TRANSPORT:	
UN No. SEA:	1971
IMDG CLASS:	2.1
IMDG PAGE No:	21.56
IMDG PACK GR:	N/A
EmS No:	2-02
MFAG TABLE No:	620
MARINE POLLUTANT:	No
AIR TRANSPORT:	
UN No., AIR:	1971

ICAO CLASS:	2.1
AIR SUB CLASS:	--
AIR PACK GR:	N/A

15. REGULATORY INFORMATION

UK REGULATORY REFERENCES: This safety data sheet conforms to the Chemicals (Hazard Information and Packaging for Supply) Regulations 2002. Exemptions from Regulations 8 and 12 exist, as a pipeline supply cannot be defined as a package.

GUIDANCE NOTES: Attention is drawn to the Gas Safety (Installation & Use) Regulations 1998, the Gas Safety (Management) Regulations 1996, relevant British Standards and appropriate National Grid Standards, codes of practice and guidance notes, all of which deal with the design, application and safe use of gas and gas fire equipment.

16. OTHER INFORMATION

Explanation of Risk Numbers in Section 2:

RISK NUMBER	RISK PHRASE
R10	Flammable
R11	Highly flammable
R12	Extremely flammable
R20	Harmful by inhalation
R21	Harmful in contact with skin
R22	Harmful if swallowed
R23	Toxic by inhalation
R24	Toxic in contact with skin
R25	Toxic if swallowed
R26	Very toxic by inhalation
R36	Irritating to eyes
R38	Irritating to skin
R45	May cause cancer
R48	Danger of serious damage to health by prolonged exposure
R65	Harmful: may cause lung damage if swallowed

R66	Repeated exposure may cause skin dryness or cracking
R67	Vapours may cause drowsiness and dizziness

Document history

Revision Date:	January 2006
Replaces	MDS issued May 2005 SDS issued March 2005, February 2004, March 2000, September 1997, August 1995