Title	**Demonstrate basic knowledge of chemistry relevant to energy and chemical processes**		
Level	**2**	**Credits**	**4**

Purpose	People credited with this unit standard are able to demonstrate knowledge of chemical concepts and the chemistry of hydrocarbons relevant to energy and chemical processes.

Classification	Energy and Chemical Plant > Operation of Energy and Chemical Plant

Available grade	Achieved

Guidance Information

None.

Outcomes and performance criteria

Outcome 1

Describe chemical concepts relevant to energy and chemical processes.

Performance criteria

1.1 Describe the structure of atoms in relation to energy and chemical processes.

Range sub-atomic particles, charge, atomic number, mass number.

1.2 Describe the periodic table of elements in in relation to energy and chemical processes.

Range elements – metals, non-metals, alloys and their associated properties, symbols, properties.

1.3 Describe ions and ionic compounds in relation to energy and chemical processes.

Range cations, anions, charge, formulae.

1.4 Describe the three states of matter in relation to energy and chemical processes.

Range solid, liquid, gas.

1.5 Describe the power of hydrogen in relation to energy and chemical processes.

Range acids, bases, neutral.

1.6 Describe factors affecting reaction rate in terms of particle collision in relation to energy and chemical processes.

Range concentration, surface area, pressure, temperature, catalyst.

Outcome 2

Demonstrate knowledge of the chemistry of hydrocarbons relevant to energy and chemical processes.

Performance criteria

2.1 Define hydrocarbon in relation to energy and chemical processes.

2.2 Describe hydrocarbon terminology in relation to energy and chemical processes.

Range isomers, density, viscosity, synthesised, reforming, fractionation, fermentation, cracking, hydration, exothermic, endothermic, incomplete combustion.

2.3 Identify and describe the three main hydrocarbon functional subgroups in relation to energy and chemical processes.

Range source, chemical properties, physical properties.

Replacement information	This unit standard was replaced by skill standard 40375.

This unit standard is expiring. Assessment against the standard must take place by the last date for assessment set out below.

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	27 May 2002	31 December 2018
Review	2	20 February 2009	31 December 2018
Rollover and Revision	3	20 April 2017	31 December 2022
Review	4	27 February 2020	31 December 2026
Review	5	27 March 2025	31 December 2026

Consent and Moderation Requirements (CMR) reference	0079

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.