



Bulk Calculations – Solution BCS 3.0

Release Notes Maintenance Level 02/03

Listing of delivery content shipped with BCS 30B CSP02 / BCS 30A CSP03

Notes

The latest version of this documentation can be found in the QuantityWare [Knowledge Base](#). All documentation is kept current for the combinations of latest BCS release with the latest supported SAP Oil & Gas release. For all currently supported combinations see [Note #000086 "Support and Release \(Lifecycle\) details"](#) page 2, "Release Lifecycle".

Your release level can be determined via:

`"/o/QTYW/COCKPIT" -> "Cockpit" -> "Support Package Level"` or

`"/o/QTYW/COCKPIT_GAS" -> "Cockpit" -> "Support Package Level"`

Version History

Version	Date	Description
00	2023-06-30	Initial Version

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1. Introduction

In 2006, QuantityWare GmbH was officially founded. Ten years after the initial release of BCP 1.0A (Bulk Calculations – Petroleum), **BCS 3.0 (Bulk Calculations – Solution)** was made available on 11.10.2016 to a constantly growing global customer base. Technically, the latest release of BCS (Bulk Calculation – Solution) is 30. The support for differing SAP Oil & Gas platforms is defined by the following letter:

A = ECC600

B = S/4HANA© 2023

E.g., the current BCS release supporting all current levels of SAP Oil & Gas on S/4HANA is **30B**. “Maintenance Levels” are delivered by QuantityWare via CSPs (Component Support Packages).

The BCS 30A Release Notes for BCS 3.0 Maintenance Level (CSP) 00 [are published here](#).

The BCS 30A Release Notes for BCS 3.0 Maintenance Level (CSP) 01 [are published here](#).
(This is the BCS 30B CSP00 starting release level)

The BCS 30A CSP02 / BCS 30B CSP01 Release Notes [are published here](#).

Bulk Calculations - Solution (BCS) contains four products:

- Bulk Calculations - Petroleum (BCP)
- Bulk Calculations - Gas (BCG)
- Compliance and Transparency - Petroleum (CTP)
- Compliance and Transparency - Gas (CTG)



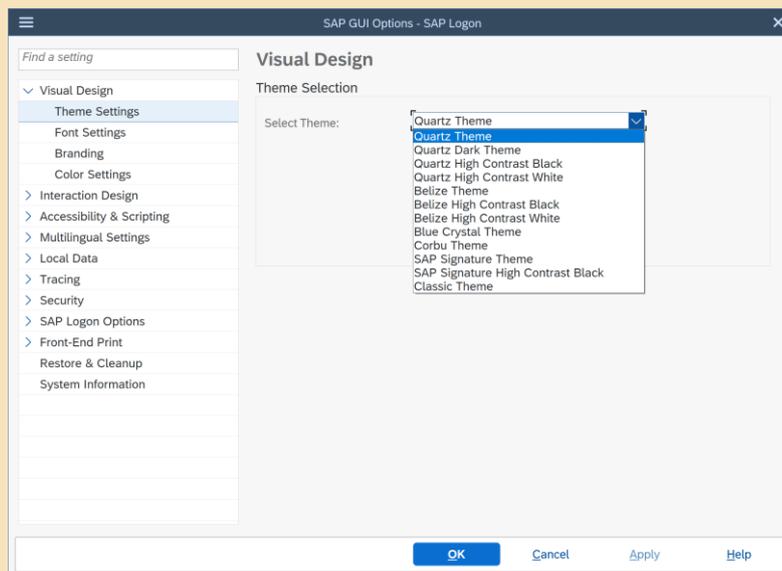
In terms of functionality, both **BCS 30B - Maintenance Level 02 (30B-02)** and **BCS 30A - Maintenance Level 03 (30A-03)** are identical. Due to this, 30B-02 has been documented with the BCS 30A CSP03 (30A-03) documentation manual versions.

This document describes the functional and usability enhancements delivered with **30B-02** and **30A-03** for the four products listed above. The delivery date of this CSP is in **Q4 2023**.

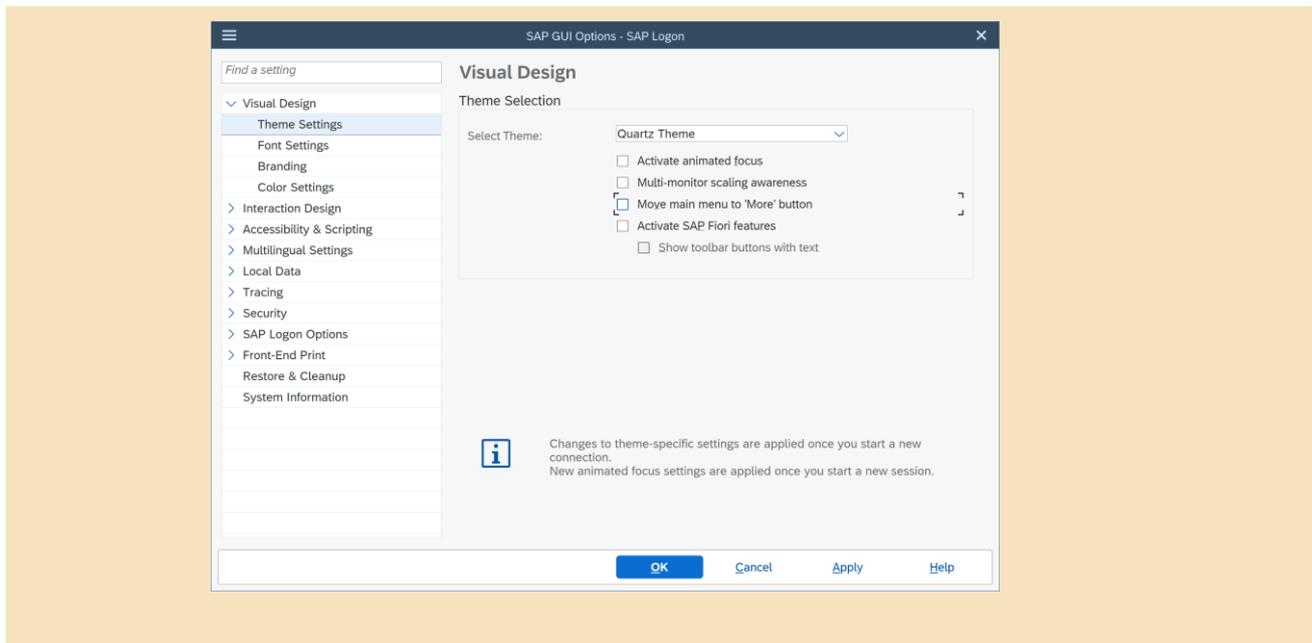
2. PMC and GMC – User Interface



No major changes in the PMC and GMC UI have been made. All SAP GUI Themes are supported by the PMC and GMC – for the BCS documentation, QuantityWare is utilizing the **Quartz Theme**.



From a usability point of view, it is recommended to disable the “Move main menu to ‘More’ button” setting:



3. Template and Installation Test

With BCS 30B-02 and BCS 30A-03, the BCP and BCG templates have been enhanced with new measurement standards configurations (conversion groups, reading groups, range groups etc.).

See chapter five for lists of new conversion, reading, and range groups.

Based on our 17 years of experience, the enhancements also consider additional feedback from our network of certified consultants and their expertise during implementation projects.

The UoM template has been extended as well. Four new energy UoM are contained in this CSP's BC Sets:

Measurement Cockpit: Display Unit of Measure (UoM) Configuration

Display Unit of Measure Details For my Ranges

UoM. fr.: GWH UoM. to: TWN

No	Dimension	OG	ISO	P	Measurement unit text	One UoM =	Factor	SI	UoM conversion
1	energy		GWH	X	gigawatt hour	1 GWH =	3,600,000,000,000.0000000000	J	UoM Conversion
2	energy		OG		gigawatt hour 15 °C combustion	1 GWN =	3,600,000,000,000.0000000000	J	UoM Conversion
3	energy			X	terawatt hour	1 TWH =	3,600,000,000,000,000.0000000000	J	UoM Conversion
4	energy		OG		terawatt hour 15 °C combustion	1 TWN =	3,600,000,000,000,000.0000000000	J	UoM Conversion

The BCP Installation Test and the BCG Installation Test have both been extended considerably – for BCP, 2 725 Test Scenarios are delivered, for BCG 1 725 Test Scenarios are delivered:

Measurement Cockpit: Run QuantityWare Installation Test

Installation Test Results

Bulk Calculations / Compliance & Transparency - Petroleum

System/client: SOI/030
Date time: 27.06.2023 09:40:37

Test programs
- Success

Scenarios
- Success

Description	Value	Comment	Comment
Test programs		Test log written	
Executed	0042		
Differences detected	0000		
Scenarios		Test log written No Scenario logs or snapshots written	
Executed	2725		
Differences detected	0000		

Measurement Cockpit: Run QuantityWare Installation Test

Installation Test Results

Bulk Calculations / Compliance & Transparency - Gas

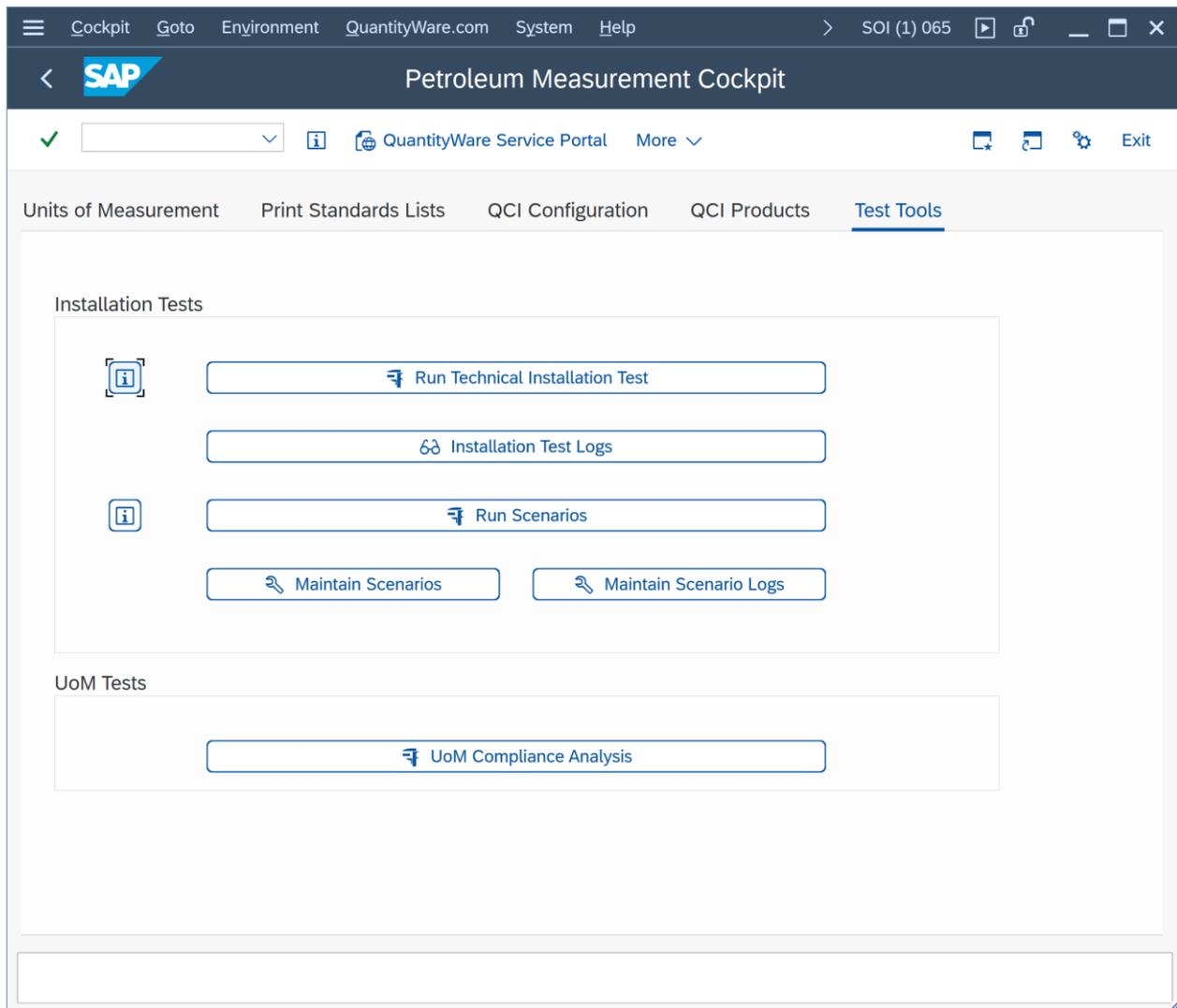
System/client: SOI/030
Date time: 27.06.2023 09:42:47

Test programs
- Success

Scenarios
- Success

Description	Value	Comment	Comment
Test programs		Test log written	
Executed	0026		
Differences detected	0000		
Scenarios		Test log written No Scenario logs or snapshots written	
Executed	1725		
Differences detected	0000		

3.1.1. New BCS Technical Installation Test



With this CSP, a *Technical* Installation Test for BCP and BCG is delivered. This – BCS template independent - test may be executed in any system and client where BCP and/or BCG are/is installed. This test executes all purely ABAP based (configuration-independent) Installation Tests. In your BCS client 045, the configuration template is available and the full Installation Test (including the *Technical* Installation Test) may be executed as in all older BCS releases.

Installation Test Results
Bulk Calculations / Compliance & Transparency - Petroleum

System/client: SOI065
Date time: 23.06.2023 15:00:21

Test programs
- Success

Description	Value	Comment	Comm...
Test programs		Test log written	
Executed	0032		
Differences detected	0000		

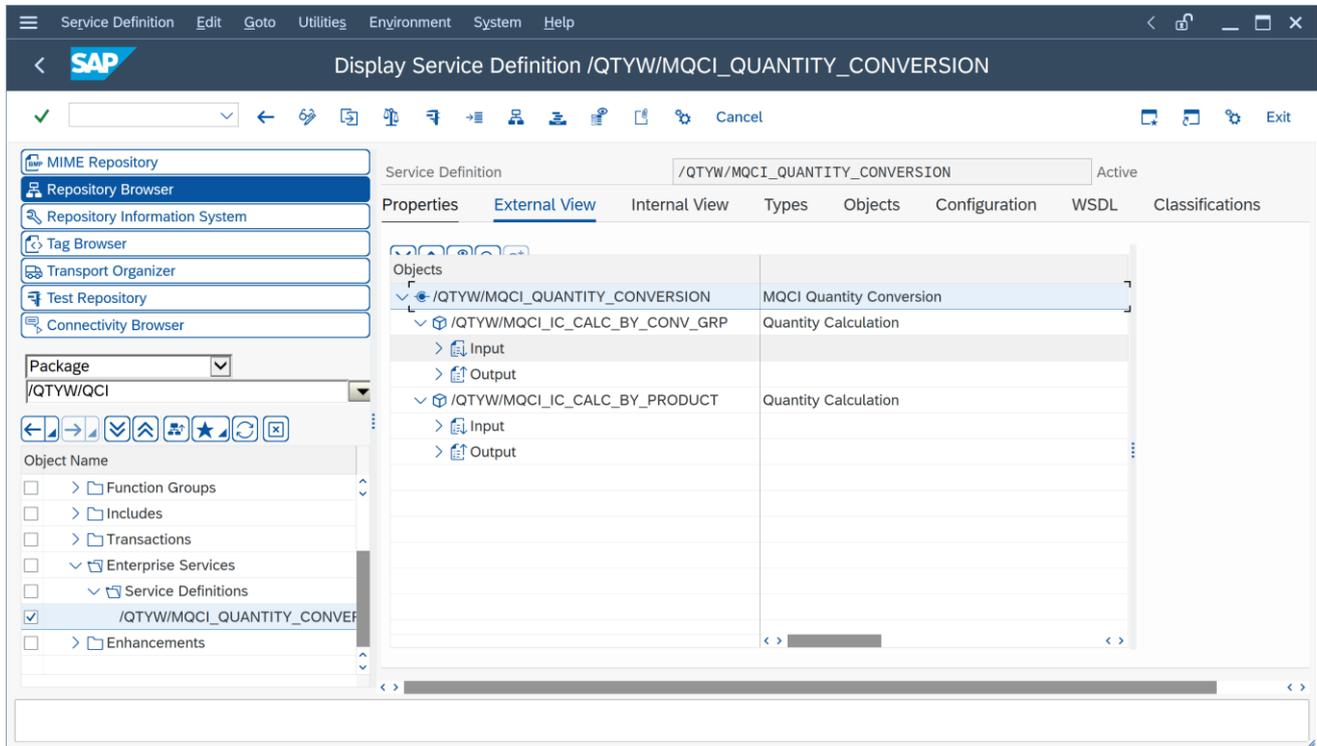
Installation Test Results
Bulk Calculations / Compliance & Transparency - Gas

System/client: SOI065
Date time: 23.06.2023 15:01:49

Test programs
- Success

Description	Value	Comment	Comm...
Test programs		Test log written	
Executed	0010		
Differences detected	0000		

4. BCP Web Services



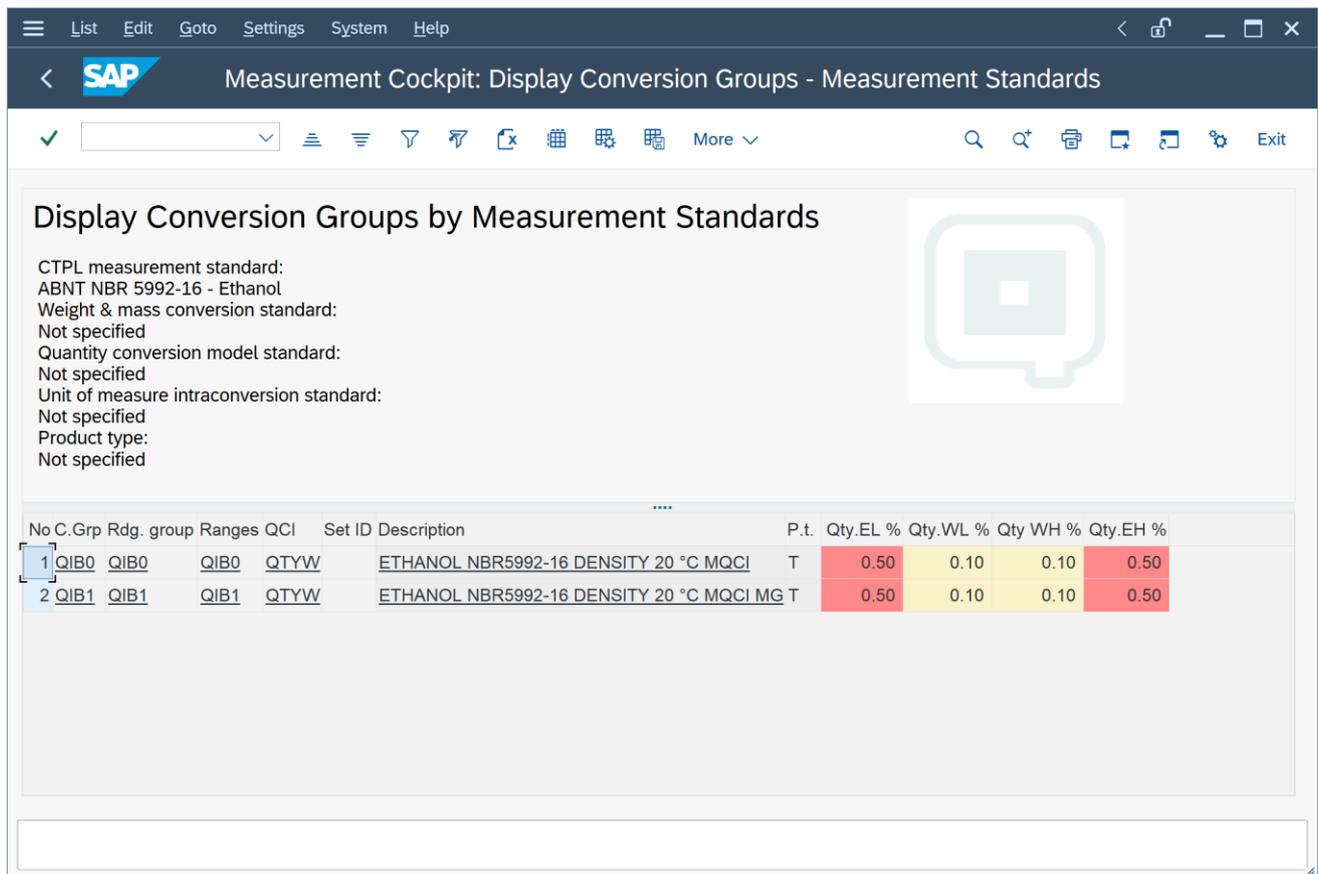
The BCP web services have been completely renovated and extended, such that all BCP MQCI template conversion groups may be using the service.



Exception: For template conversion groups that require LPG chemical composition data, web service support will be provided with the planned new BCG web services in Q4 2025.

5. Petroleum and Gas Measurement Standards

5.1. Support of Brazilian Standard ABNT NBR 5992(2016)

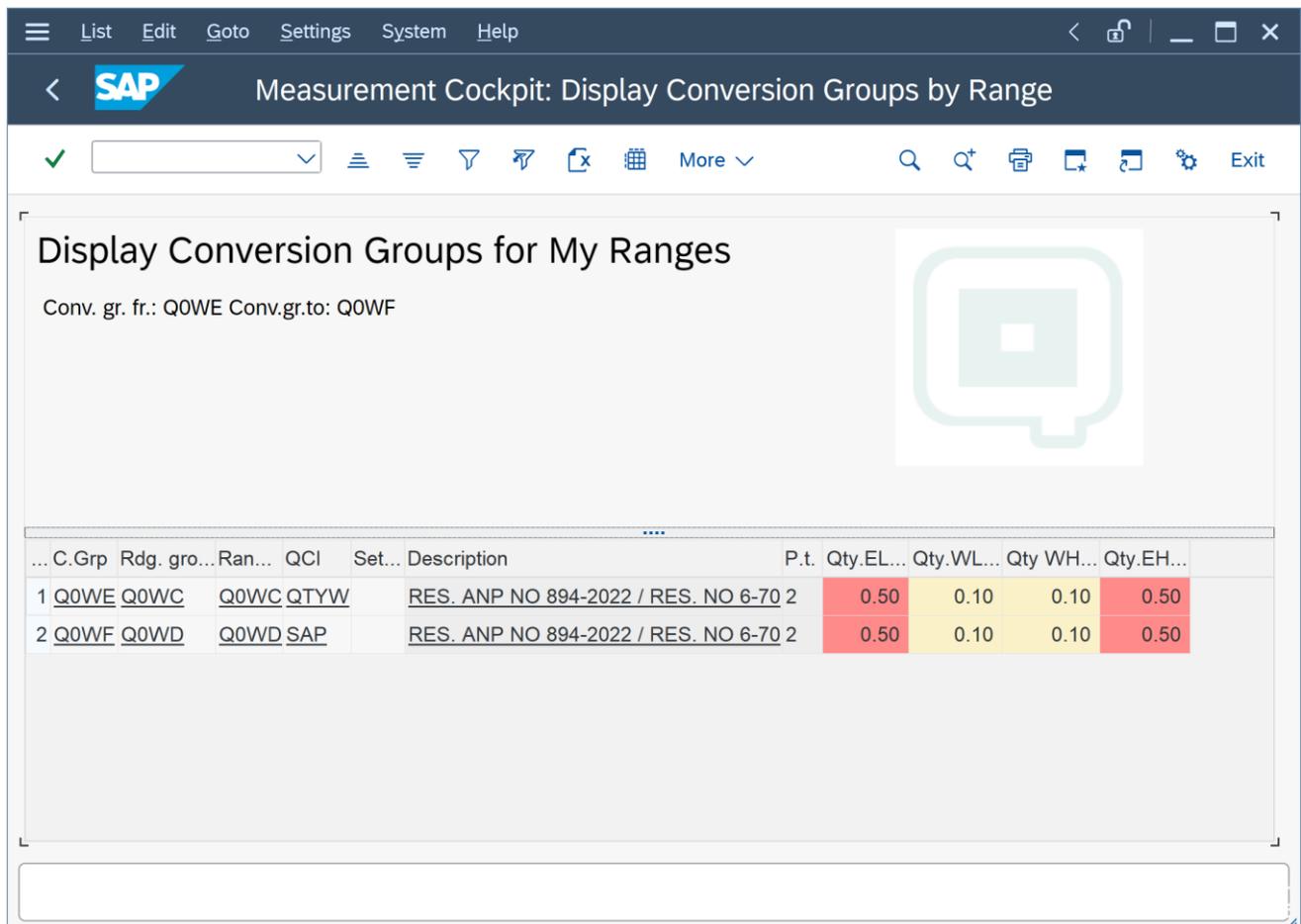


The screenshot shows the SAP Measurement Cockpit interface. The title bar reads "Measurement Cockpit: Display Conversion Groups - Measurement Standards". The main content area is titled "Display Conversion Groups by Measurement Standards" and lists several measurement standards, including "CTPL measurement standard: ABNT NBR 5992-16 - Ethanol". Below this, a table displays conversion groups for "ETHANOL NBR5992-16 DENSITY 20 °C MQCI".

No	C.Grp	Rdg. group	Ranges	QCI	Set ID	Description	P.t	Qty.EL %	Qty.WL %	Qty.WH %	Qty.EH %
1	QIB0	QIB0	QIB0	QTYW		ETHANOL NBR5992-16 DENSITY 20 °C MQCI	T	0.50	0.10	0.10	0.50
2	QIB1	QIB1	QIB1	QTYW		ETHANOL NBR5992-16 DENSITY 20 °C MQCI MG T		0.50	0.10	0.10	0.50

ABNT NBR 5992 has been revised and published in November 2016 as ABNT NBR 5992 (2016). A new MQCI implementation of ABNT NBR 5992 (2016) is required. The [Advanced Development \(AD\)](#), which supports ABNT NBR 5992 (2016), has been released to BCP customers with [note 000108](#). That AD is now contained in this CSP. With this CSP, the additional template data for the AD is also delivered.

5.2. Support of Brazilian Standard RESOLUÇÃO ANP No 894 – 2022 / CNP No 6 – 70



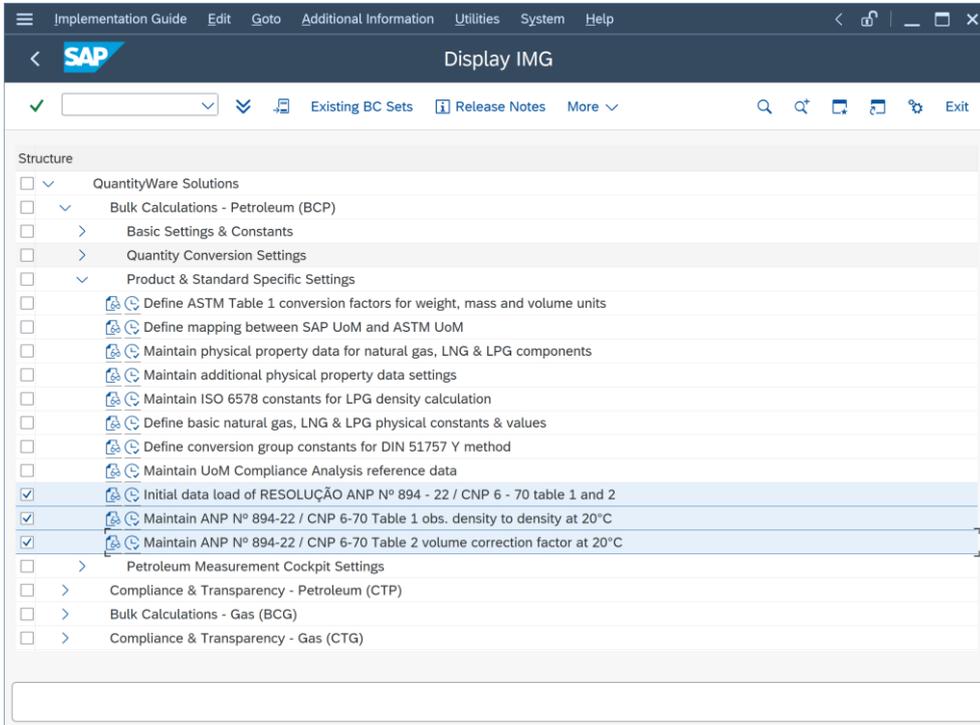
Measurement Cockpit: Display Conversion Groups by Range

Conv. gr. fr.: Q0WE Conv.gr.to: Q0WF

...	C.Grp	Rdg. gro...	Ran...	QCI	Set...	Description	P.t.	Qty.EL...	Qty.WL...	Qty.WH...	Qty.EH...
1	Q0WE	Q0WC	Q0WC	QTYW		RES. ANP NO 894-2022 / RES. NO 6-70	2	0.50	0.10	0.10	0.50
2	Q0WF	Q0WD	Q0WD	SAP		RES. ANP NO 894-2022 / RES. NO 6-70	2	0.50	0.10	0.10	0.50

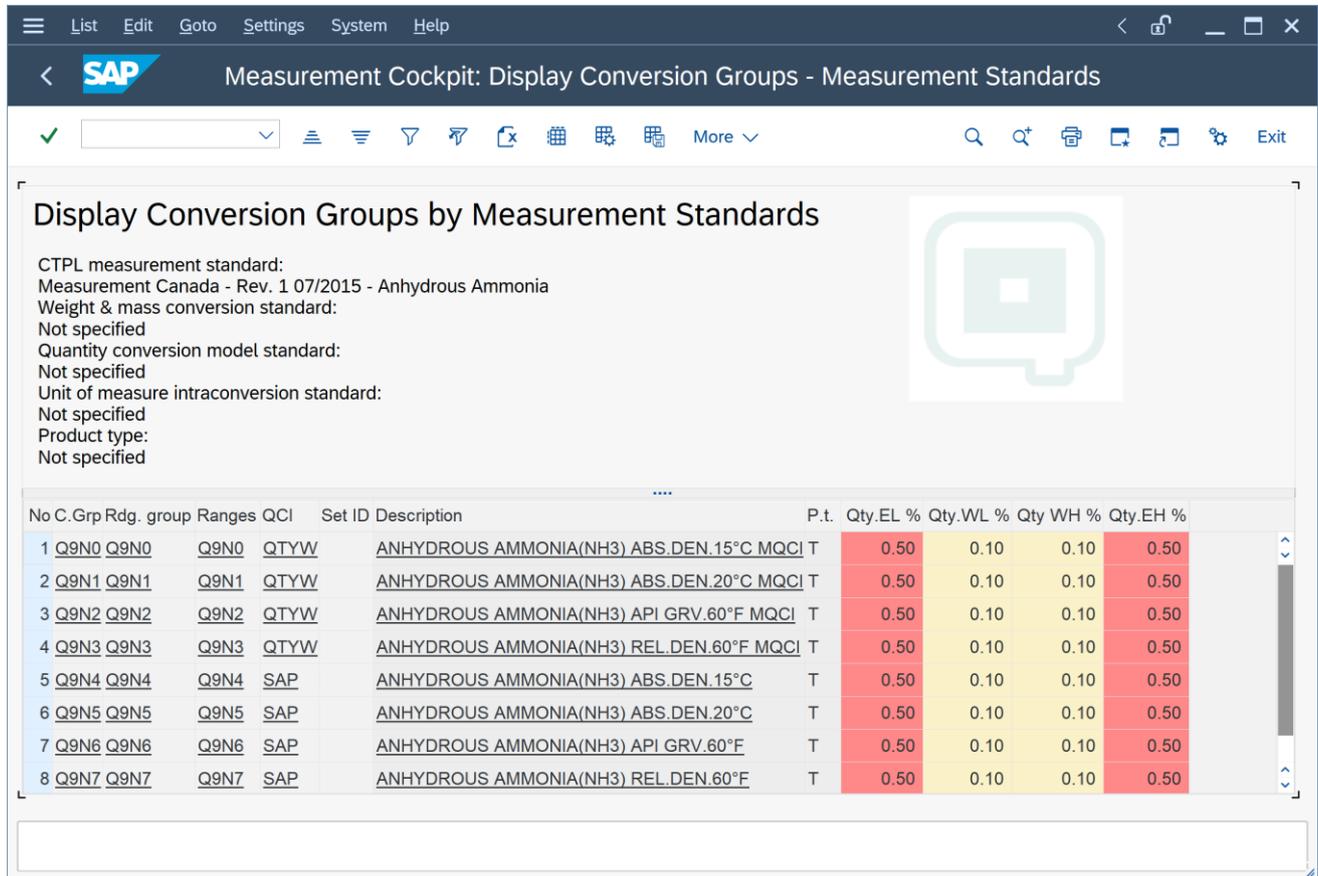
With [RESOLUÇÃO ANP No 894 - 2022](#), RESOLUÇÃO CNP No 6 – 70 has been revoked and technically put into force again. No changes to the 1970 Tables I(1) and II(2) content and description have been made. QuantityWare also delivers a new implementation within an Advanced Development (AD) in Q2 2023 to support density corrections based on Table I as well. Since the now newly reconfirmed [national Brazilian standard is the printed table values](#) (e.g., ASTM D1250-1952 Table 6), a complete internal validation of the formula-based approach (delivered for Table II in 2013) against all table values has been required. That validation showed that, for Table I, differences occur between the calculated and printed tables. Table II calculations also showed differences in the interpolation range between table increments. Thus, QuantityWare delivers - via an initial table load activity - more than 200 000 Table I and Table II entries, which customers SAP need to initially load into two tables at their own risk – or maintain their

validated entries. Thus, careful validation by each customer is required to ensure the correctness of the table entries.



See [note 000101](#) and [note 000113](#) for additional details. That AD is delivered with [note 000114](#) and is now contained in this CSP. With this CSP, the additional conversion group template data is delivered as well.

5.3. Support of Anhydrous Ammonia



Measurement Cockpit: Display Conversion Groups - Measurement Standards

CTPL measurement standard:
Measurement Canada - Rev. 1 07/2015 - Anhydrous Ammonia
Weight & mass conversion standard:
Not specified
Quantity conversion model standard:
Not specified
Unit of measure intraconversion standard:
Not specified
Product type:
Not specified

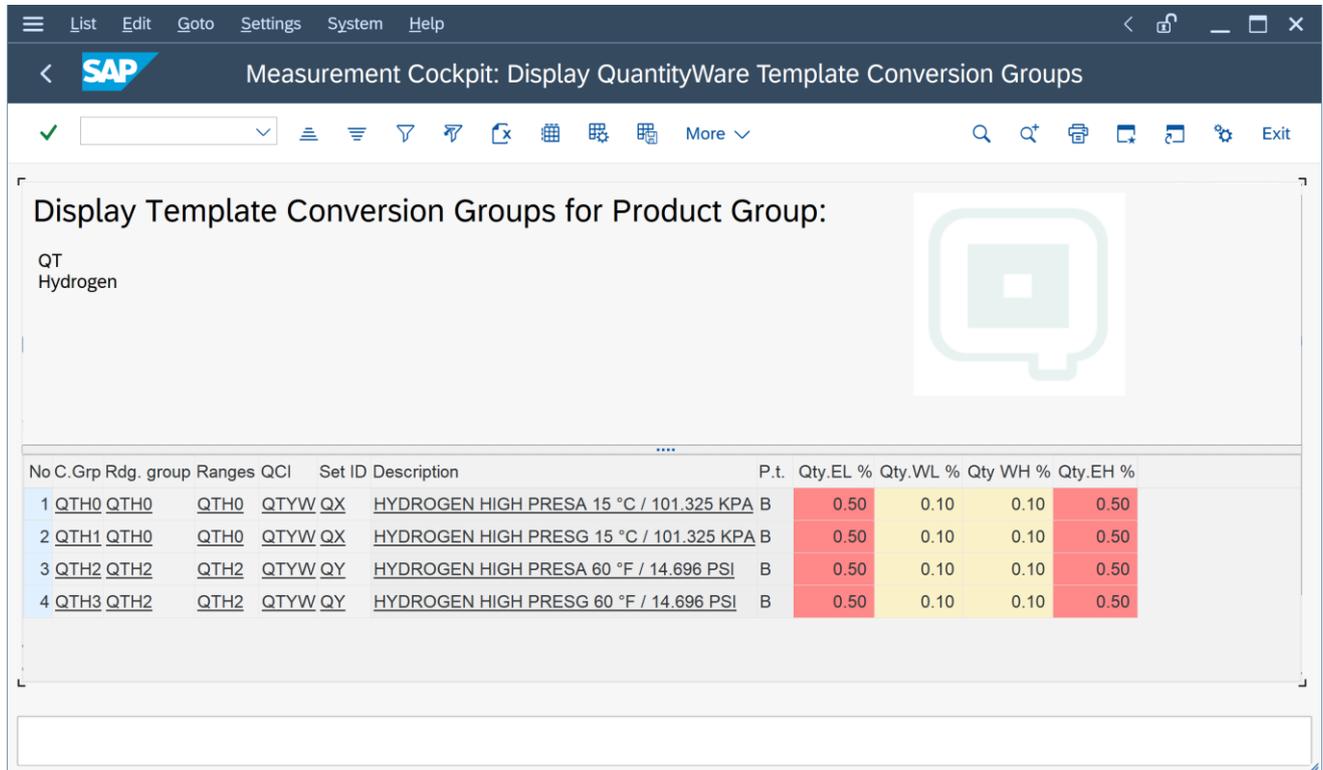
No	C.Grp	Rdg. group	Ranges	QCI	Set ID	Description	P.t.	Qty.EL %	Qty.WL %	Qty.WH %	Qty.EH %
1	Q9N0	Q9N0	Q9N0	QTYW		ANHYDROUS AMMONIA(NH3) ABS.DEN.15°C MQCI	T	0.50	0.10	0.10	0.50
2	Q9N1	Q9N1	Q9N1	QTYW		ANHYDROUS AMMONIA(NH3) ABS.DEN.20°C MQCI	T	0.50	0.10	0.10	0.50
3	Q9N2	Q9N2	Q9N2	QTYW		ANHYDROUS AMMONIA(NH3) API GRV.60°F MQCI	T	0.50	0.10	0.10	0.50
4	Q9N3	Q9N3	Q9N3	QTYW		ANHYDROUS AMMONIA(NH3) REL.DEN.60°F MQCI	T	0.50	0.10	0.10	0.50
5	Q9N4	Q9N4	Q9N4	SAP		ANHYDROUS AMMONIA(NH3) ABS.DEN.15°C	T	0.50	0.10	0.10	0.50
6	Q9N5	Q9N5	Q9N5	SAP		ANHYDROUS AMMONIA(NH3) ABS.DEN.20°C	T	0.50	0.10	0.10	0.50
7	Q9N6	Q9N6	Q9N6	SAP		ANHYDROUS AMMONIA(NH3) API GRV.80°F	T	0.50	0.10	0.10	0.50
8	Q9N7	Q9N7	Q9N7	SAP		ANHYDROUS AMMONIA(NH3) REL.DEN.60°F	T	0.50	0.10	0.10	0.50

A national standard document from Measurement Canada, based on experimental data, is available for the liquid phase anhydrous ammonia product – the experimental data is defined in:

“The Thermodynamic Properties of Ammonia, by L. Haar and S.J. Gallagher, Journal of Physics Chemistry Ref. Data, Volume 7, No. 3, 1978”.

A quantity conversion implementation has been made available as part of our BCP solution, which utilizes all VCF table values of this national standard, as an advanced development (AD) with [note 000102](#). That AD is contained in this CSP. With this CSP, the additional template data is delivered as well.

5.4. Support of 100% Hydrogen Quantity Conversions

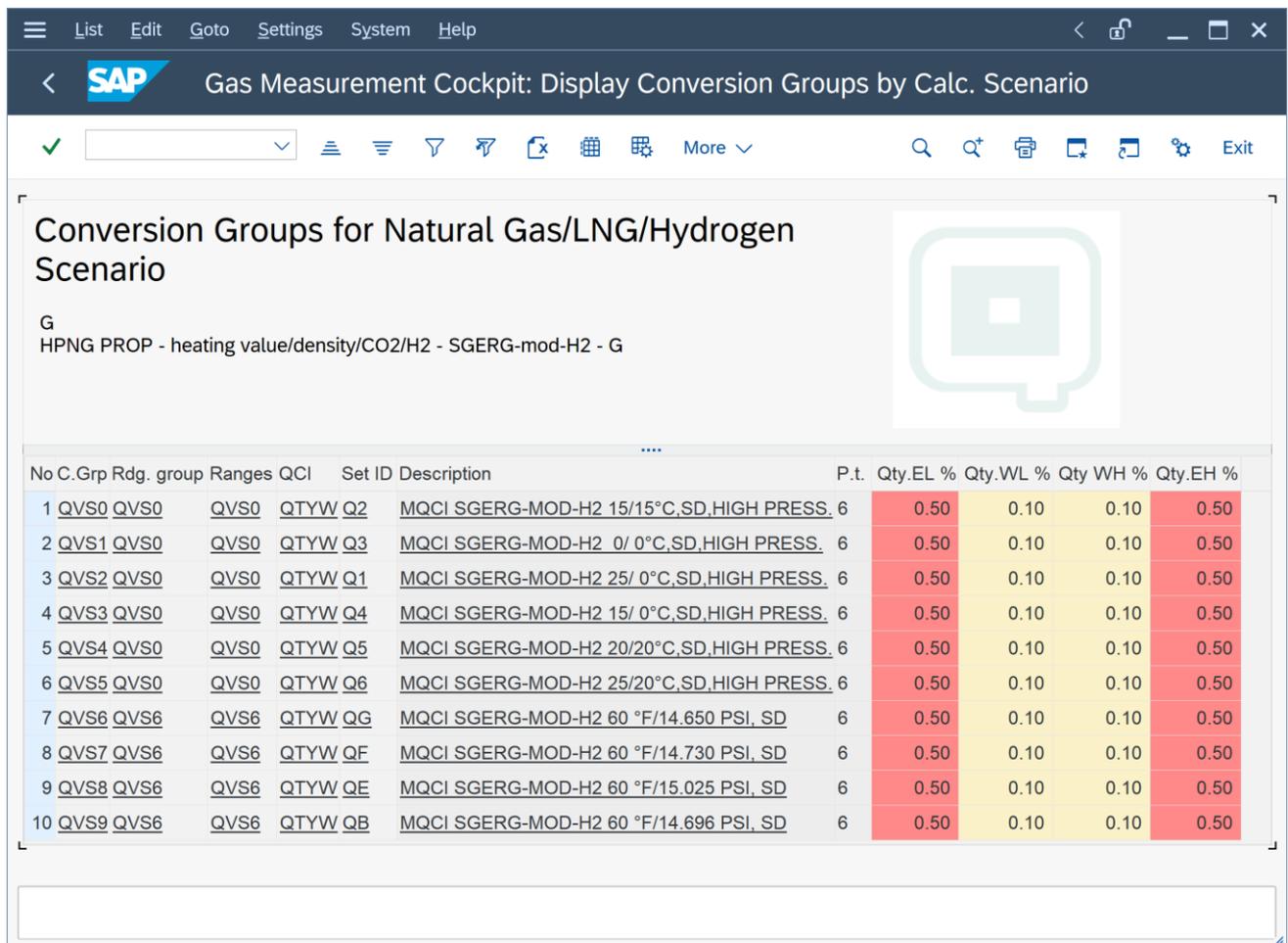


Display Template Conversion Groups for Product Group:
QT
Hydrogen

No	C.Grp	Rdg. group	Ranges	QCI	Set ID	Description	P.t.	Qty.EL %	Qty.WL %	Qty.WH %	Qty.EH %
1	QTH0	QTH0	QTH0	QTYW_QX		HYDROGEN HIGH PRESA 15 °C / 101.325 KPA	B	0.50	0.10	0.10	0.50
2	QTH1	QTH0	QTH0	QTYW_QX		HYDROGEN HIGH PRESG 15 °C / 101.325 KPA	B	0.50	0.10	0.10	0.50
3	QTH2	QTH2	QTH2	QTYW_QY		HYDROGEN HIGH PRESA 60 °F / 14.696 PSI	B	0.50	0.10	0.10	0.50
4	QTH3	QTH2	QTH2	QTYW_QY		HYDROGEN HIGH PRESG 60 °F / 14.696 PSI	B	0.50	0.10	0.10	0.50

The first release of a high pressure hydrogen quantity conversion solution – as part of QuantityWare BCG 3.0 – has been delivered as an advanced development (AD) with [note 000100](#), with an accompanying [working paper “High Pressure Quantity Conversions”](#). That AD is contained in this CSP. With this CSP, the additional template data is delivered as well.

5.5. Support of Hydrogen / Natural Gas Blending – SGERG-mod-H2



The screenshot shows the SAP Gas Measurement Cockpit interface. The title bar reads "Gas Measurement Cockpit: Display Conversion Groups by Calc. Scenario". The main content area is titled "Conversion Groups for Natural Gas/LNG/Hydrogen Scenario" and includes the scenario name "G HPNG PROP - heating value/density/CO2/H2 - SGERG-mod-H2 - G". Below this is a table with 10 rows of conversion groups. The table columns are: No, C.Grp, Rdg., group, Ranges, QCI, Set ID, Description, P.t., Qty.EL %, Qty.WL %, Qty.WH %, and Qty.EH %.

No	C.Grp	Rdg.	group	Ranges	QCI	Set ID	Description	P.t.	Qty.EL %	Qty.WL %	Qty.WH %	Qty.EH %
1	QVS0	QVS0	QVS0	QTYW	Q2	MQCI	SGERG-MOD-H2 15/15°C,SD,HIGH PRESS.	6	0.50	0.10	0.10	0.50
2	QVS1	QVS0	QVS0	QTYW	Q3	MQCI	SGERG-MOD-H2 0/ 0°C,SD,HIGH PRESS.	6	0.50	0.10	0.10	0.50
3	QVS2	QVS0	QVS0	QTYW	Q1	MQCI	SGERG-MOD-H2 25/ 0°C,SD,HIGH PRESS.	6	0.50	0.10	0.10	0.50
4	QVS3	QVS0	QVS0	QTYW	Q4	MQCI	SGERG-MOD-H2 15/ 0°C,SD,HIGH PRESS.	6	0.50	0.10	0.10	0.50
5	QVS4	QVS0	QVS0	QTYW	Q5	MQCI	SGERG-MOD-H2 20/20°C,SD,HIGH PRESS.	6	0.50	0.10	0.10	0.50
6	QVS5	QVS0	QVS0	QTYW	Q6	MQCI	SGERG-MOD-H2 25/20°C,SD,HIGH PRESS.	6	0.50	0.10	0.10	0.50
7	QVS6	QVS6	QVS6	QTYW	QG	MQCI	SGERG-MOD-H2 60 °F/14.650 PSI, SD	6	0.50	0.10	0.10	0.50
8	QVS7	QVS6	QVS6	QTYW	QF	MQCI	SGERG-MOD-H2 60 °F/14.730 PSI, SD	6	0.50	0.10	0.10	0.50
9	QVS8	QVS6	QVS6	QTYW	QE	MQCI	SGERG-MOD-H2 60 °F/15.025 PSI, SD	6	0.50	0.10	0.10	0.50
10	QVS9	QVS6	QVS6	QTYW	QB	MQCI	SGERG-MOD-H2 60 °F/14.696 PSI, SD	6	0.50	0.10	0.10	0.50

The options, advantages and risks of blending natural gas with hydrogen are currently discussed widely and controversially, [e.g. the feasibility within the European gas grid at the transportation and distribution level](#). From a measurement point of view, the situation has been clarified with the publication of [a new research paper](#) by the [DVGW](#). QuantityWare BCG customers thus may now calculate standardized volumes of gases of all possible ratios of hydrogen content within a dry natural gas – and all other required properties – utilizing existing BCG high pressure dry natural gas conversion groups. All details can be found in our [Natural Gas / Hydrogen Mixture FAQ](#).

With this CSP, the modified SGERG88 equation implementation, named SGERG-mod-H2 (as defined in the DVGW research paper), is delivered, including new SGERG-mod-H2 template conversion groups.

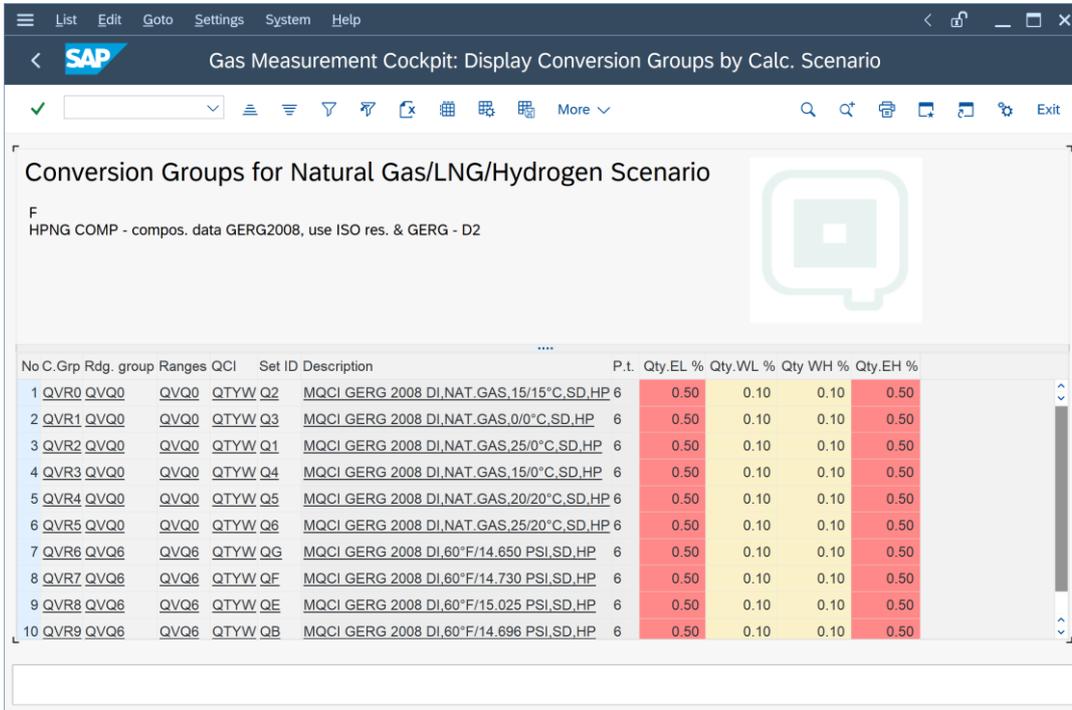
5.6. Support of AGA Report No. 8 – Part 2 – Thermodynamic Properties of Natural Gas and Related Gases – GERG-2008 Equation of State

SAP Gas Measurement Cockpit: Display Conversion Groups by Calc. Scenario

Conversion Groups for Natural Gas/LNG/Hydrogen Scenario

E
HPNG COMP - compos. data GERG2008, use all GERG 2008 r. - D1

No	C.Grp	Rdg. group	Ranges	QCI	Set ID	Description	P.t.	Qty.EL %	Qty.WL %	Qty.WH %	Qty.EH %
1	QVQ0	QVQ0	QVQ0	QTYW Q2	MQCI	GERG 2008 DA,15/15°C,SD,HIGH PRS.	6	1.00	0.10	0.10	1.00
2	QVQ1	QVQ0	QVQ0	QTYW Q3	MQCI	GERG 2008 DA,0/0°C,SD,HIGH PRS.	6	1.00	0.10	0.10	1.00
3	QVQ2	QVQ0	QVQ0	QTYW Q1	MQCI	GERG 2008 DA,25/0°C,SD,HIGH PRS.	6	1.00	0.10	0.10	1.00
4	QVQ3	QVQ0	QVQ0	QTYW Q4	MQCI	GERG 2008 DA,15/0°C,SD,HIGH PRS.	6	1.00	0.10	0.10	1.00
5	QVQ4	QVQ0	QVQ0	QTYW Q5	MQCI	GERG 2008 DA,20*/20°C,SD,HIGH PRS.	6	1.00	0.10	0.10	1.00
6	QVQ5	QVQ0	QVQ0	QTYW Q6	MQCI	GERG 2008 DA,25/20°C,SD,HIGH PRS.	6	1.00	0.10	0.10	1.00
7	QVQ6	QVQ6	QVQ6	QTYW QG	MQCI	GERG 2008 DA,60°F/14.650 PSI,SD,HP	6	1.00	0.10	0.10	1.00
8	QVQ7	QVQ6	QVQ6	QTYW QF	MQCI	GERG 2008 DA,60°F/14.730 PSI,SD,HP	6	1.00	0.10	0.10	1.00
9	QVQ8	QVQ6	QVQ6	QTYW QE	MQCI	GERG 2008 DA,60°F/15.025 PSI,SD,HP	6	1.00	0.10	0.10	1.00
10	QVQ9	QVQ6	QVQ6	QTYW QB	MQCI	GERG 2008 DA,60°F/14.696 PSI,SD,HP	6	1.00	0.10	0.10	1.00



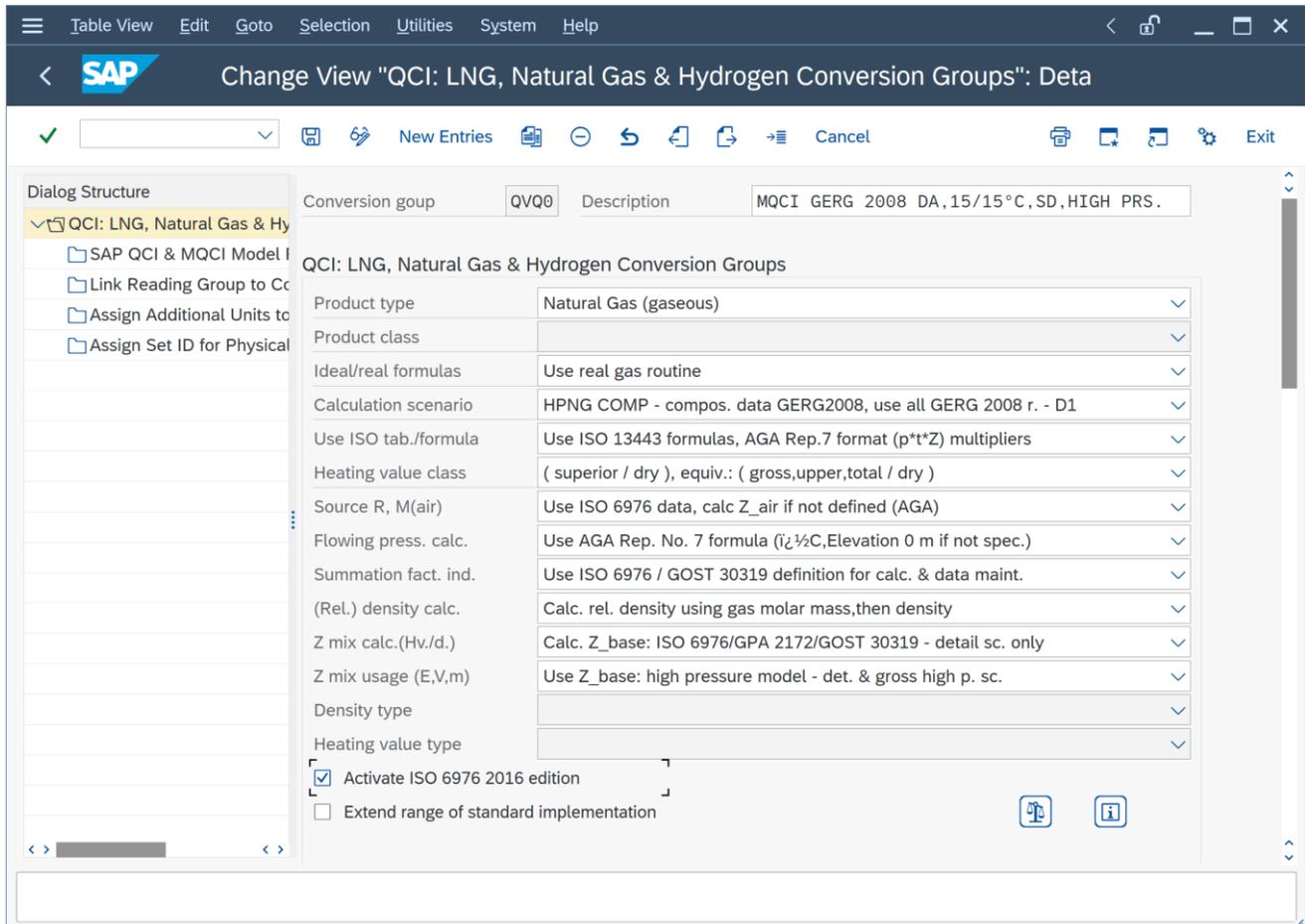
Conversion Groups for Natural Gas/LNG/Hydrogen Scenario

F
HPNG COMP - compos. data GERG2008, use ISO res. & GERG - D2

No	C.Grp	Rdg.	group	Ranges	QCI	Set ID	Description	P.t.	Qty.EL %	Qty.WL %	Qty.WH %	Qty.EH %
1	QVR0	QVQ0	QVQ0	QTYW	Q2		MQCI GERG 2008 DI,NAT.GAS,15/15°C,SD,HP	6	0.50	0.10	0.10	0.50
2	QVR1	QVQ0	QVQ0	QTYW	Q3		MQCI GERG 2008 DI,NAT.GAS,0/0°C,SD,HP	6	0.50	0.10	0.10	0.50
3	QVR2	QVQ0	QVQ0	QTYW	Q1		MQCI GERG 2008 DI,NAT.GAS,25/0°C,SD,HP	6	0.50	0.10	0.10	0.50
4	QVR3	QVQ0	QVQ0	QTYW	Q4		MQCI GERG 2008 DI,NAT.GAS,15/0°C,SD,HP	6	0.50	0.10	0.10	0.50
5	QVR4	QVQ0	QVQ0	QTYW	Q5		MQCI GERG 2008 DI,NAT.GAS,20/20°C,SD,HP	6	0.50	0.10	0.10	0.50
6	QVR5	QVQ0	QVQ0	QTYW	Q6		MQCI GERG 2008 DI,NAT.GAS,25/20°C,SD,HP	6	0.50	0.10	0.10	0.50
7	QVR6	QVQ6	QVQ6	QTYW	QG		MQCI GERG 2008 DI,60°F/14.650 PSI,SD,HP	6	0.50	0.10	0.10	0.50
8	QVR7	QVQ6	QVQ6	QTYW	QF		MQCI GERG 2008 DI,60°F/14.730 PSI,SD,HP	6	0.50	0.10	0.10	0.50
9	QVR8	QVQ6	QVQ6	QTYW	QE		MQCI GERG 2008 DI,60°F/15.025 PSI,SD,HP	6	0.50	0.10	0.10	0.50
10	QVR9	QVQ6	QVQ6	QTYW	QB		MQCI GERG 2008 DI,60°F/14.696 PSI,SD,HP	6	0.50	0.10	0.10	0.50

With this CSP, a new implementation of the GERG-2008 EOS is delivered. New BCG template conversion groups that utilize this new implementation within two new BCG MQCI calculation scenarios and corresponding MQCI ABAP function modules, are also delivered.

5.7. Support of ISO 6976(2016)



The third edition of the standard “ISO 6976 Natural gas – Calculation of calorific values, density, relative density and Wobbe indices from composition” was issued in 2016. Through technical revision, it cancels and replaces the second edition from 1995. As stated in the third edition’s introduction, adopting the changes detailed in this standard will not be without cost, as instrumental (and ERP business) software will need updating. QuantityWare has carefully analyzed this third edition. The major technical changes were:

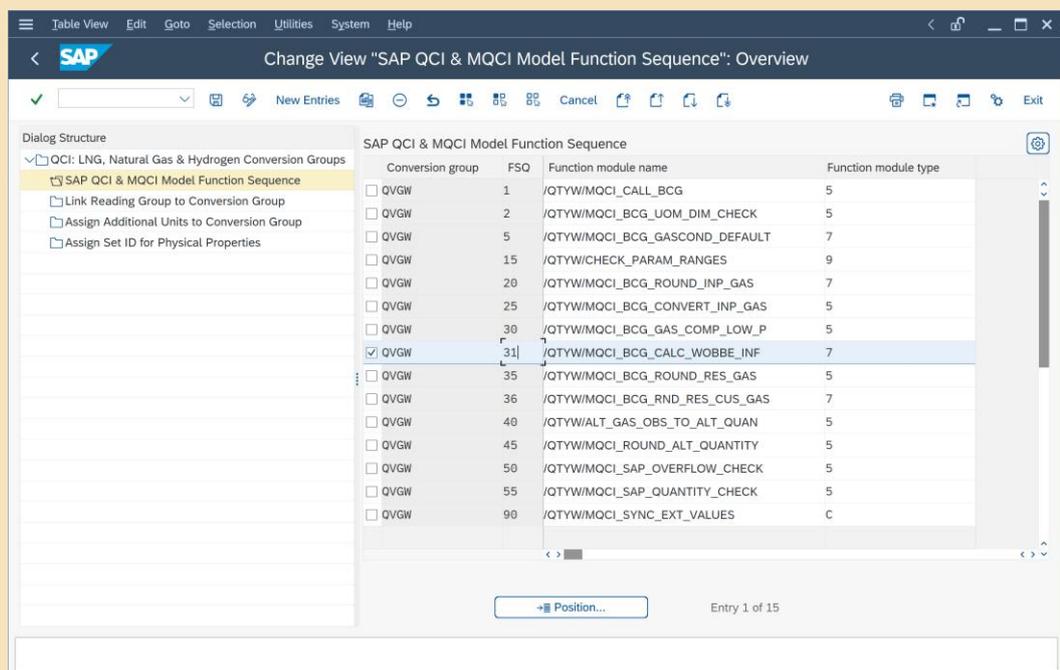
- New method to calculate ideal and real molar-based calorific value and thus subsequent calorific values (mass and volume based)
- Introduction of net/inferior Wobbe index

- New component data (n-dodecane, n-tridecane, n-tetradecane, n-pentadecane) (**not implemented & not delivered with this CSP**)
- Completely updated physical property data and auxiliary constants
- Harmonization with GPA 2172 and related U.S. customary-based standards – Provision of different reference pressures in all formulas of ISO 6976

ISO 6976(2016) calculations may be activated by a single indicator in the MQCI conversion groups. New example template conversion groups are delivered as part of the BCG template.



The net/inferior Wobbe index may be calculated by plugging function `/QTYW/MQCI_BCG_CALC_WOBBE_INF` into an MQCI ISO 6976(2016) conversion group in combination with a customer result parameter. This is demonstrated via template conversion set group QVGW:



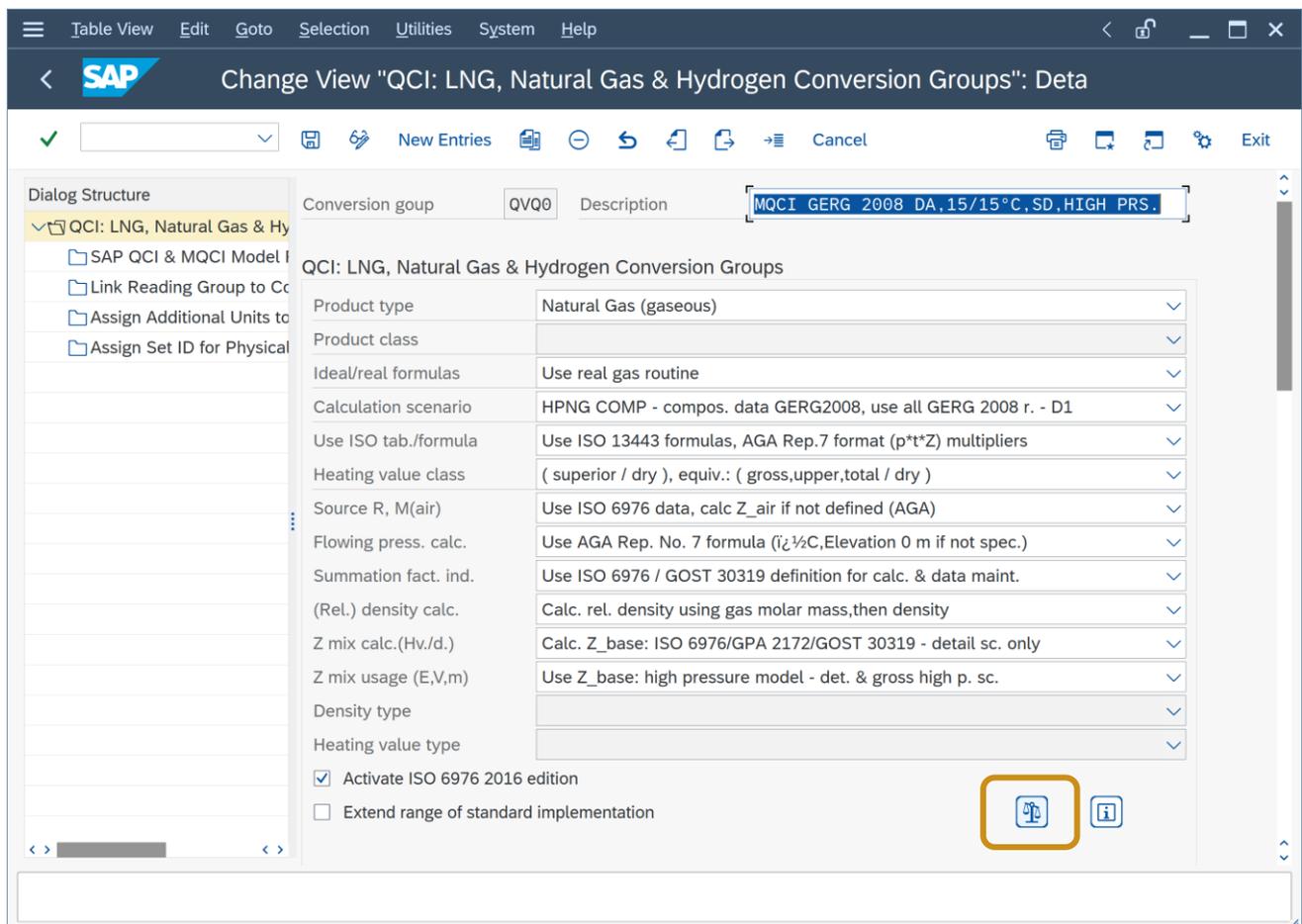
Conversion group	FSQ	Function module name	Function module type
<input type="checkbox"/> QVGW	1	/QTYW/MQCI_CALL_BCG	5
<input type="checkbox"/> QVGW	2	/QTYW/MQCI_BCG_UOM_DIM_CHECK	5
<input type="checkbox"/> QVGW	5	/QTYW/MQCI_BCG_GASCOND_DEFAULT	7
<input type="checkbox"/> QVGW	15	/QTYW/CHECK_PARAM_RANGES	9
<input type="checkbox"/> QVGW	20	/QTYW/MQCI_BCG_ROUND_INP_GAS	7
<input type="checkbox"/> QVGW	25	/QTYW/MQCI_BCG_CONVERT_INP_GAS	5
<input type="checkbox"/> QVGW	30	/QTYW/MQCI_BCG_GAS_COMP_LOW_P	5
<input checked="" type="checkbox"/> QVGW	31	/QTYW/MQCI_BCG_CALC_WOBBE_INF	7
<input type="checkbox"/> QVGW	35	/QTYW/MQCI_BCG_ROUND_RES_GAS	5
<input type="checkbox"/> QVGW	36	/QTYW/MQCI_BCG_RND_RES_CUS_GAS	7
<input type="checkbox"/> QVGW	40	/QTYW/ALT_GAS_OBS_TO_ALT_QUAN	5
<input type="checkbox"/> QVGW	45	/QTYW/MQCI_ROUND_ALT_QUANTITY	5
<input type="checkbox"/> QVGW	50	/QTYW/MQCI_SAP_OVERFLOW_CHECK	5
<input type="checkbox"/> QVGW	55	/QTYW/MQCI_SAP_QUANTITY_CHECK	5
<input type="checkbox"/> QVGW	90	/QTYW/MQCI_SYNC_EXT_VALUES	C

6. Application and Usage Specific Features

The following chapters describe the application and usage specific enhancements.

6.1. BCP/CTP & BCG/CTG Functionality

6.1.1. New BCG Check Logic

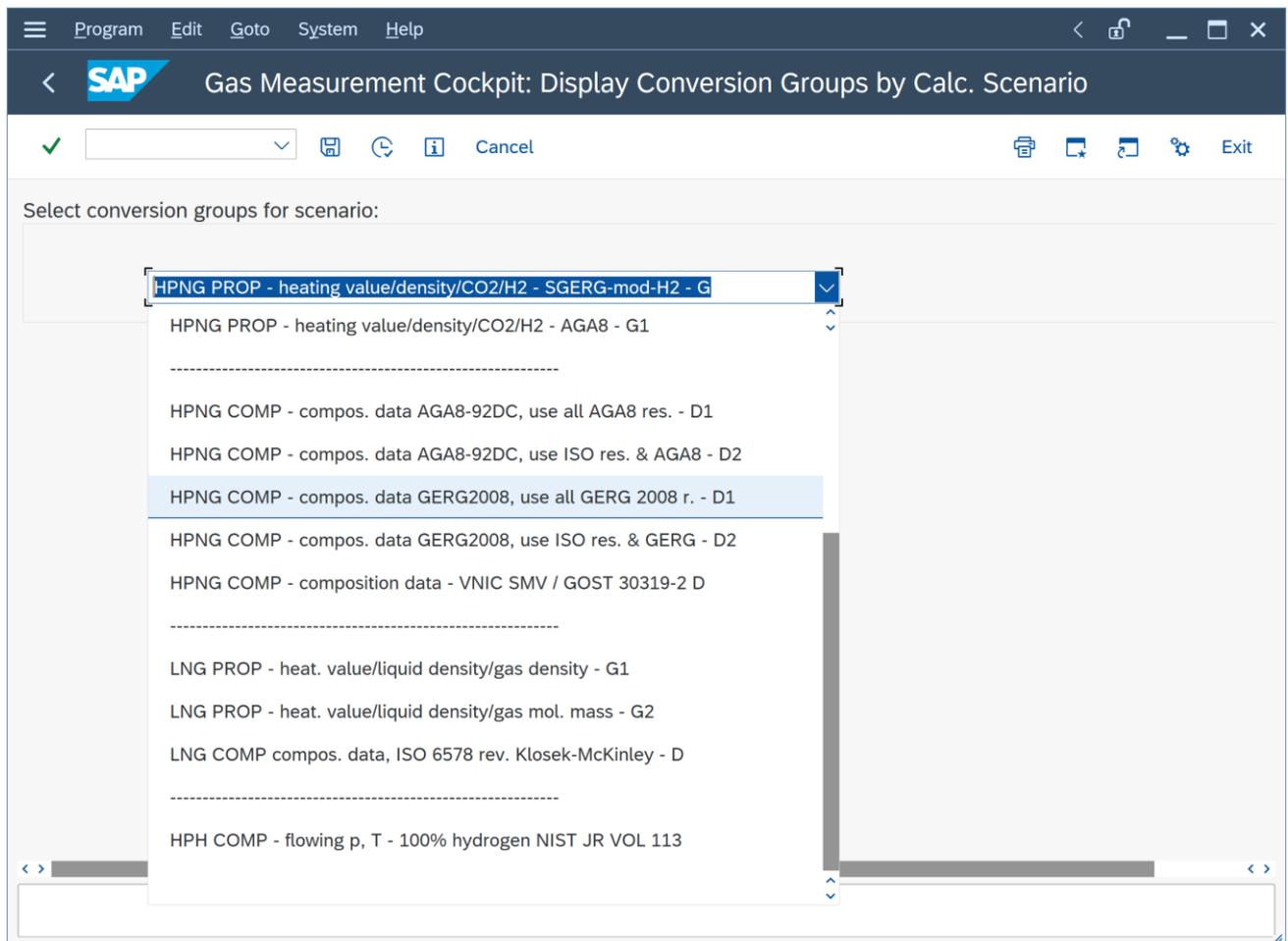


New check logic has been implemented for the MQCI conversion group check:

- The base conversion UoM are checked for coherence.

6.2. BCP/CTP & BCG/CTG Usability

6.2.1. BCG Calculation Scenario Selection



The BCG selection of conversion groups by scenarios has been enhanced, such that the classification of the scenarios matches exactly that as defined in the BCG certification training and online documentation:

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Short text

Gas Measurement Cockpit: Display Conversion Groups by Calc. Scenario

Selection

You select the natural gas/LNG/hydrogen calculation scenario for which you wish to display the available conversion groups - the following MQCI natural gas, LNG and hydrogen calculation model scenarios are supported, for the scenario categories:

LPNG - Low Pressure Natural Gas

HPNG - High Pressure Natural Gas

LNG - Liquefied Natural Gas

HPH - High Pressure Hydrogen

and the scenario types:

PROP - Enter physical property data (e.g. density, heating value, limited number of chemical composition data...)

COMP - Enter complete chemical composition data

Calculation model scenario:

LPNG PROP - heating value & density

1 LPNG COMP - complete composition data

2 HPNG PROP - heating value/density/CO2/H2 - SGERG 88 - G

G HPNG PROP - heating value/density/CO2/H2 - SGERG-mod-H2 - G

4 HPNG PROP - heating value/density/CO2/CO/H2 - AGA8 - G2

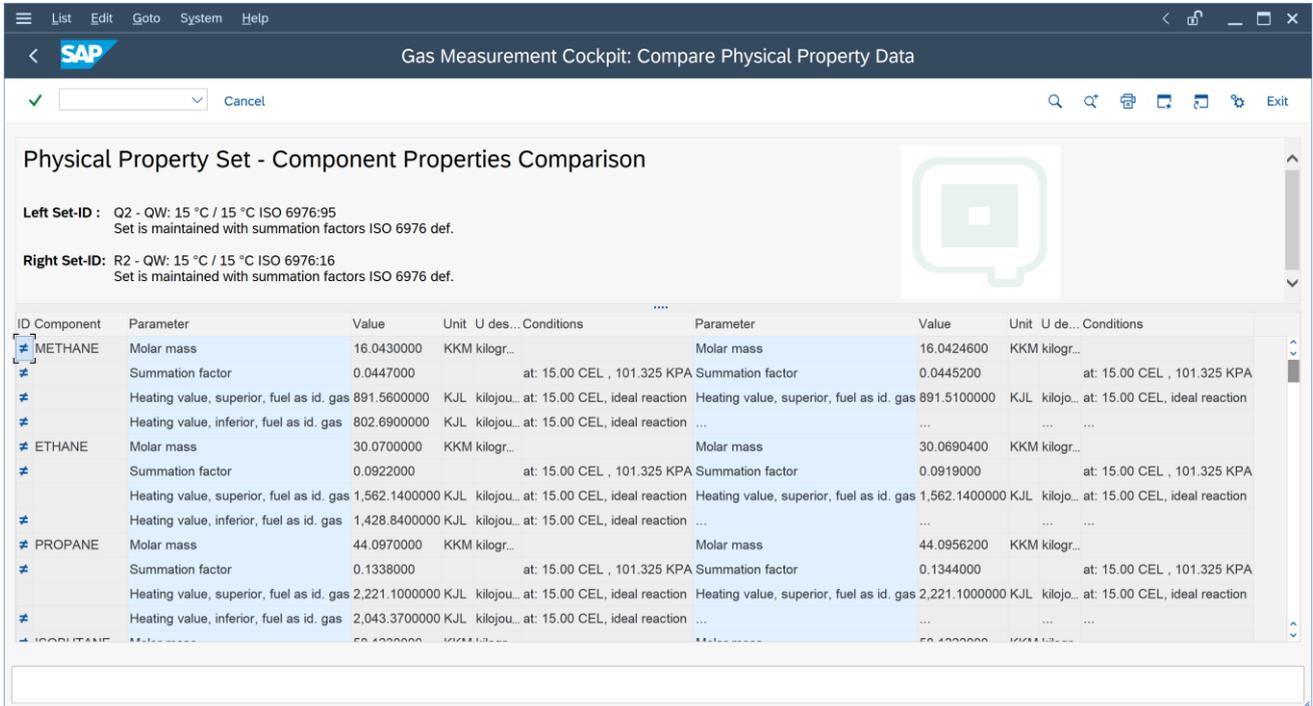
A HPNG PROP - density/N2/CO2 - GERG 91 / GOST 30319-2 G1

B HPNG PROP - density/N2,/CO2 - NX19 modified /GOST 30319-2 G2

3 HPNG PROP - heating value/density/CO2/H2 - AGA8 - G1

5 HPNG COMP - compos. data AGA8-92DC, use all AGA8 res. - D1

6.2.2. BCG – Compare Physical Property Data



Physical Property Set - Component Properties Comparison

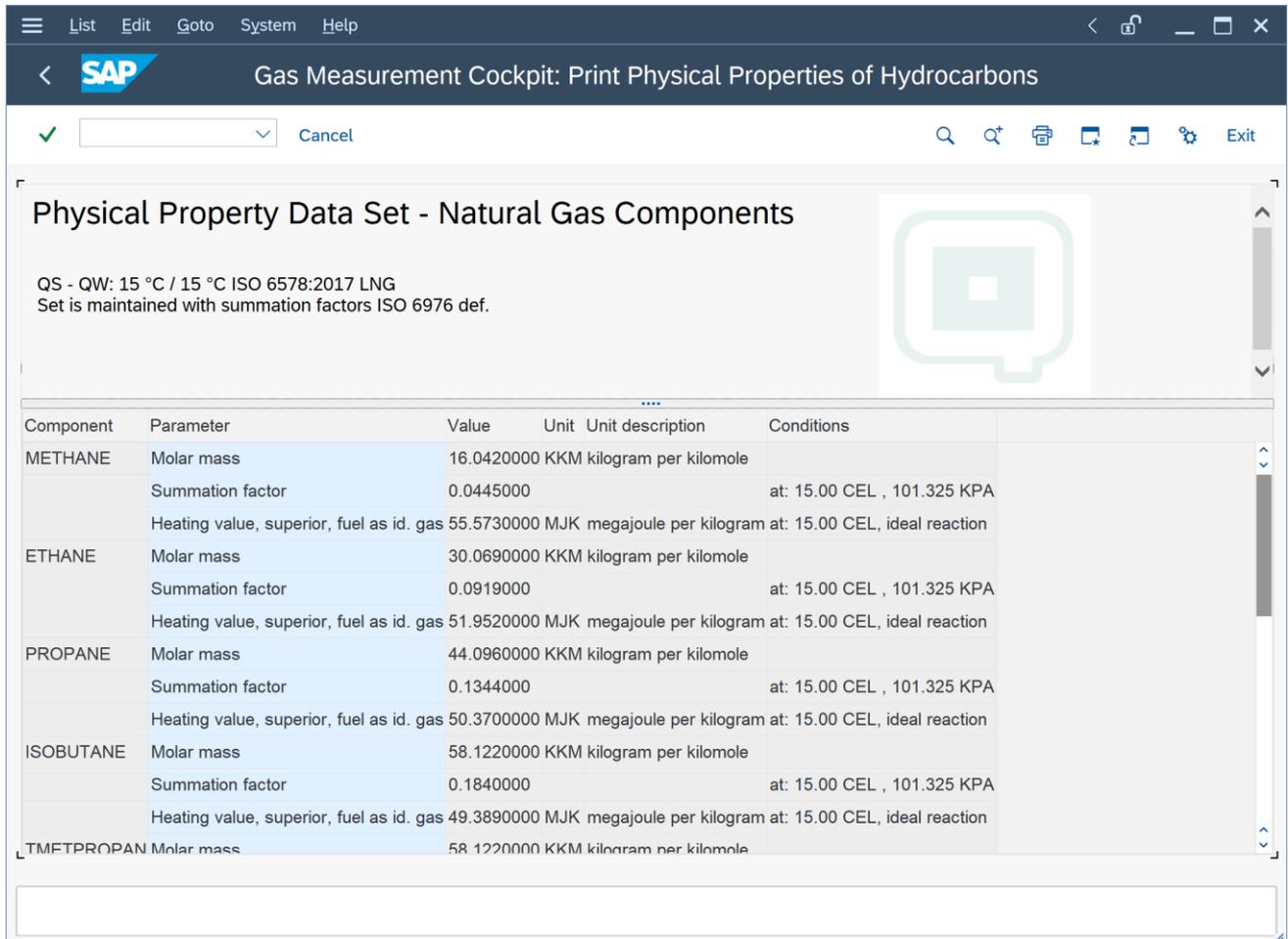
Left Set-ID: Q2 - QW: 15 °C / 15 °C ISO 6976:95
Set is maintained with summation factors ISO 6976 def.

Right Set-ID: R2 - QW: 15 °C / 15 °C ISO 6976:16
Set is maintained with summation factors ISO 6976 def.

ID Component	Parameter	Value	Unit	U des...	Conditions	Parameter	Value	Unit	U de...	Conditions
METHANE	Molar mass	16.0430000	KKM	kilogr...		Molar mass	16.0424600	KKM	kilogr...	
	Summation factor	0.0447000			at: 15.00 CEL , 101.325 KPA	Summation factor	0.0445200			at: 15.00 CEL , 101.325 KPA
	Heating value, superior, fuel as id. gas	891.5600000	KJL	kilojou...	at: 15.00 CEL, ideal reaction	Heating value, superior, fuel as id. gas	891.5100000	KJL	kilojo...	at: 15.00 CEL, ideal reaction
	Heating value, inferior, fuel as id. gas	802.6900000	KJL	kilojou...	at: 15.00 CEL, ideal reaction	...	...	...	...	...
ETHANE	Molar mass	30.0700000	KKM	kilogr...		Molar mass	30.0690400	KKM	kilogr...	
	Summation factor	0.0922000			at: 15.00 CEL , 101.325 KPA	Summation factor	0.0919000			at: 15.00 CEL , 101.325 KPA
	Heating value, superior, fuel as id. gas	1,562.1400000	KJL	kilojou...	at: 15.00 CEL, ideal reaction	Heating value, superior, fuel as id. gas	1,562.1400000	KJL	kilojo...	at: 15.00 CEL, ideal reaction
	Heating value, inferior, fuel as id. gas	1,428.8400000	KJL	kilojou...	at: 15.00 CEL, ideal reaction	...	...	...	...	...
PROPANE	Molar mass	44.0970000	KKM	kilogr...		Molar mass	44.0956200	KKM	kilogr...	
	Summation factor	0.1338000			at: 15.00 CEL , 101.325 KPA	Summation factor	0.1344000			at: 15.00 CEL , 101.325 KPA
	Heating value, superior, fuel as id. gas	2,221.1000000	KJL	kilojou...	at: 15.00 CEL, ideal reaction	Heating value, superior, fuel as id. gas	2,221.1000000	KJL	kilojo...	at: 15.00 CEL, ideal reaction
	Heating value, inferior, fuel as id. gas	2,043.3700000	KJL	kilojou...	at: 15.00 CEL, ideal reaction	...	...	...	...	...

The physical property data display (GMC -> Print Standards Lists) has been completely re-designed for easier comparison.

6.2.3. Display ISO Physical Property Data



The screenshot displays the SAP Gas Measurement Cockpit interface. The title bar reads "Gas Measurement Cockpit: Print Physical Properties of Hydrocarbons". Below the title bar, there is a search bar with a checkmark icon and a "Cancel" button. To the right of the search bar are icons for search, zoom, print, and other functions, along with an "Exit" button.

The main content area is titled "Physical Property Data Set - Natural Gas Components". Below this title, it specifies the conditions: "QS - QW: 15 °C / 15 °C ISO 6578:2017 LNG" and "Set is maintained with summation factors ISO 6976 def.". A large, faint QuantityWare logo is visible in the background of this section.

The data is presented in a table with the following columns: Component, Parameter, Value, Unit, Unit description, and Conditions. The table lists physical properties for Methane, Ethane, Propane, Isobutane, and TMETPROPAN.

Component	Parameter	Value	Unit	Unit description	Conditions
METHANE	Molar mass	16.0420000	KKM	kilogram per kilomole	
	Summation factor	0.0445000			at: 15.00 CEL , 101.325 KPA
	Heating value, superior, fuel as id. gas	55.5730000	MJK	megajoule per kilogram	at: 15.00 CEL, ideal reaction
ETHANE	Molar mass	30.0690000	KKM	kilogram per kilomole	
	Summation factor	0.0919000			at: 15.00 CEL , 101.325 KPA
	Heating value, superior, fuel as id. gas	51.9520000	MJK	megajoule per kilogram	at: 15.00 CEL, ideal reaction
PROPANE	Molar mass	44.0960000	KKM	kilogram per kilomole	
	Summation factor	0.1344000			at: 15.00 CEL , 101.325 KPA
	Heating value, superior, fuel as id. gas	50.3700000	MJK	megajoule per kilogram	at: 15.00 CEL, ideal reaction
ISOBUTANE	Molar mass	58.1220000	KKM	kilogram per kilomole	
	Summation factor	0.1840000			at: 15.00 CEL , 101.325 KPA
	Heating value, superior, fuel as id. gas	49.3890000	MJK	megajoule per kilogram	at: 15.00 CEL, ideal reaction
TMETPROPAN	Molar mass	58.1220000	KKM	kilogram per kilomole	

(GMC -> Print Standards Lists): The ISO 6976 and ISO 6578 physical property data display has been harmonized with the general physical property data display and compare functions.

7. BCP & BCG Notes

The following QuantityWare notes are contained in BCS 30B-02 and BCS 30A-03:

Note Number	Short Text	Link
000100	Advanced Development - High Pressure Hydrogen Quantity Conversions	https://www.quantityware.com/wp-content/uploads/Note-000100.pdf
000102	Anhydrous Ammonia Quantity Conversions	https://www.quantityware.com/wp-content/uploads/Note-000102.pdf
000103	BCS 30x Collective Note - Corrections & Enhancements II	https://www.quantityware.com/wp-content/uploads/Note-000103.pdf
000104	PMC - Conversion group model check - incorrect error log	https://www.quantityware.com/wp-content/uploads/Note-000104.pdf
000105	SAP QCI TAS - Density UoM Tolerance/Defaulting Issue - ASTM D1250-80 - Bol. téc. PETROBRAS	https://www.quantityware.com/wp-content/uploads/Note-000105.pdf
000107	Default Test Density UoM for Range Checks & IDOC processing	https://www.quantityware.com/wp-content/uploads/Note-000107.pdf
000108	Advanced Development - ABNT NBR 5992 (2016) Support	https://www.quantityware.com/wp-content/uploads/Note-000108.pdf
000109	MQCI Dialog box - document display shows incorrect UoM	https://www.quantityware.com/wp-content/uploads/Note-000109.pdf
000110	Material overview lists shows incorrect conversion group status for hydrogen	https://www.quantityware.com/wp-content/uploads/Note-000110.pdf
000114	Advanced Development - Brazilian Standard RESOLUÇÃO N° 894 - 2022 - RESOLUÇÃO N° 6 - 70 - Tables I & II	https://www.quantityware.com/wp-content/uploads/Note-000114.pdf

8. BCS Documentation

With this BCS CSP, all BCS documentation manuals as well as all consulting and working papers have been editorially revised and updated. All revised documents will be available in the QuantityWare knowledge base in Q1 2024.

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