Bulk Calculations – Solution BCS 3.0

Release Notes

Maintenance Level 00

Listing of Delivery Content shipped with BCS 3.0



Notes

© Copyright 2016-2020 QuantityWare GmbH. All rights reserved.

SAP, R/3, mySAP, mySAP.com, xApps, xApp, SAP NetWeaver, and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP AG in Germany and in several other countries all over the world. All other product and service names mentioned are the trademarks of their respective companies.

Microsoft, Windows, SQL-Server, Powerpoint and Outlook are registered trademarks of Microsoft Corporation.

These materials and the information therein are subject to change without notice. These materials are provided by the company QuantityWare GmbH for informational purposes only. There is no implied representation or warranty of any kind, and QuantityWare GmbH shall not be liable for errors or omissions with respect to the materials provided. The only warranties for the products and services of QuantityWare GmbH are those set forth in the express warranty statements accompanying such products and services, if any. No statement within this document should be construed as constituting an additional warranty.

Contents BULK CALCULATIONS - SOLUTION BCS 3.0I RELEASE NOTES MAINTENANCE LEVEL 00......I Petroleum and Gas Measurement Standards2 Support of GPA Midstream Standard 2145-16 - Natural Gas & NGL2 Support of ISO 6578 - Intermediate Results & Rounding - LNG 4 Support of ASTM Table 1 - Base Skipping For All Dimensions - All Products 4 Support of ASTM D1250-52 Table 6 Temperature Interpolation - Crude Oil & Products......4 Confirmation of ASTM D1250-08(13)^{e1} Compliance - Crude Oil & Products 4 Confirmation of ASTM D1550-94(15) Compliance - Butadiene4 Confirmation of BS EN 14214:2012+A1:2014 Compliance - Biofuel5 Errata API MPMS Chapter 11.2.4 - LPG/NGL......5 Application and Usage Specific Features.....7 BCP/CTP & BCG/CTG Functionality7 Test Scenario Tool - Calculate Expected Results7 Installation Test Log8

Additional List Printing Reports	
PDF List Printing For Compression Factor Standards	9
BCP/CTP & BCG/CTG Usability	
Enhanced Usability - List Printing	10
Enhanced Usability - Installation Test	12
Enhanced Usability - Single Test Reports	13
Enhanced Usability - Customizing Data Access	13
Enhanced Usability - Cockpits	13
Enhanced Usability - Test Scenario Maintenance	14
BCP/CTP & BCG/CTG Security	14
BCP and BCG Corrections	15



Introduction

In 2006 QuantityWare GmbH was officially founded. Ten years after the initial release of BCP 1.0A (Bulk Calculations - Petroleum) in 2006, **BCS 3.0** (Bulk Calculations - Solution) is made available to a constantly growing global customer base.

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)

This document describes the functional and usability enhancements that are delivered with BCS 3.0 - maintenance level 00 - for the four products listed above.

Planned delivery of BCS 3.0 on SAP ERP 6.0 is Q3 2016.

Petroleum and Gas Measurement Standards

Support of GPA Midstream Standard 2145-16 - Natural Gas & NGL

This important standard becomes effective on January 1st, 2017. QuantityWare delivers 6 new physical property data sets - based on the data delivered with this standard. Important: In each customer project, it is the responsibility of the project team to independently validate that data with an own copy of GPA 2145-16.

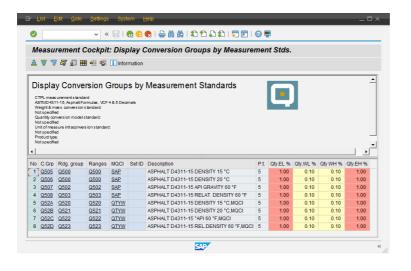
GPA 2145-16 delivers additional component data that had been delivered with GPA TP-17 before. The 6 new data sets contain the data for components defined in GPA 2145-09 as well as the data for hydrogen and carbon monoxide defined therein.

For consistency reasons, the summation factors are maintained as in GPA 2145-09 data sets. The property data for air has been adjusted as defined in GPA 2145-16 in these new data sets and the summation factor has been calculated from the unitless summation factor given therein.

 Image: A start of the start of	🗸 🗸 😪 🗸 🗸 🗸		∙ਹ∔∣♦	u 🌞						
Gas	Measurement Cockpit: Print Phy	ysical Pro	operties o	of H	ydrocarbons					
🔒 Prin	nt PP Set 🚺 Information									
Phy	sical Property Data Sets - Natu	ral Gas I	Compon	onte						-
т пу	Sical Froperty Data Dets - Natu	Tai Oas	compon	enta	•					
Select	t Set ID -> Dis play Set Components									
	t Set ID -> Dis play Set Components t Column 3 to 8 -> Dis play Set Header Data									
							Ч			
Select							ų			-
Select							Ļ			•
Select		B. Tmp. HV	Base temp	Unit	Unit description	B.Press.HV	B.Press.VL	Unit	Unit description	•
Select	t Column 3 to 8 -> Display Set Header Data	B. Tmp. HV <u>60.00</u>	Base temp <u>60.00</u>	1	1		B.Press.VL 14.696	Unit PSI	Unit description pound-force per square Inch	• •
Select	t Column 3 to 8 -> Display Set Header Data			Unit	Unit description					•
Select Set ID QM QN	t Column 3 to 8 -> Display Set Header Data Description QW: GPA 2145-16 60 *F/14.696 PSI	<u>60.00</u>	<u>60.00</u>	Unit <u>FAH</u>	Unit description degree Fahrenheit	<u>14.696</u> <u>101.325</u>	<u>14.696</u>	<u>PSI</u>	pound-force per square Inch	• •
Select Set ID QM QN QO	t Column 3 to 8 -> Display Set Header Data Description QW: GPA 2145-16 60 *F/14.696 PSI QW: GPA 2145-16 15 *C/101.325 KPA	<u>60.00</u> <u>15.00</u>	<u>60.00</u> <u>15.00</u>	Unit <u>FAH</u> <u>CEL</u>	Unit description degree Fahrenheit degree Celsius	14.696 101.325 15.025	<u>14.696</u> <u>101.325</u>	<u>PSI</u> KPA	pound-force per square Inch kilopascal	• •
Select Set ID QM QN QO QP	t Column 3 to 8 -> Display Set Header Data Description QW: GPA 2145-16 60 *F/14.696 PSI QW: GPA 2145-16 15 *C/101.325 KPA QW: GPA 2145-16 BASED 60 *F/15.025 PSI	60.00 15.00 60.00	60.00 15.00 60.00	Unit <u>FAH</u> <u>CEL</u> <u>FAH</u>	Unit description degree Fahrenheit degree Celsius degree Fahrenheit	14.696 101.325 15.025 14.730	<u>14.696</u> <u>101.325</u> <u>15.025</u>	<u>PSI</u> KPA PSI	pound-force per square Inch kilopascal pound-force per square Inch	•

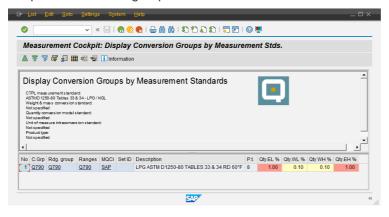
Support of ASTM D4311-15 Calculations - Asphalt

ASTM D4311 has been revised and reissued as ASTM D4311-15. New SAP QCI and QuantityWare MQCI implementations for ASTM D4311-15 are delivered with BCS 3.0. List printing of ASTM D4311-15 is available via the Petroleum Measurement Cockpit. New template conversion groups enable easy usage of this new measurement standard:



Support of ASTM D1250-80 Table 33 & 34 Calculations - LPG/NGL

ASTM Tables 33 and 34 are "reduced" Tables of the ASTM D1250-52 Tables 23 and 24 for LPG/NGL. Contractual agreements in some countries still require usage of these historical tables. With BCS 3.0, a SAP QCI implementation of ASTM Tables 33 and 34 is delivered. List printing of ASTM Tables 33 and 34 is available via the Petroleum Measurement Cockpit. A new template conversion group is delivered.



Support of ISO 6578 - Intermediate Results & Rounding - LNG

With <u>note 00064</u>, an advanced development for LNG density calculations has been made available. The advanced development as well as the associated new template conversion groups described in that note are part of BCS 3.0:

Me	Measurement Cockpit: Display Conversion Groups by Range											
a]	77	a 🗊 🖽		1nforr	mation							
-												
Di	splay		rsion G	Group	s for	My Ranges		-				-
				noup	0 101	my runges						
Conv.gr. fr: QUCAConvgrto:												
00	nv.gr. fr.:	abox compris										
	nv.gr. fr.:	aborcomgra										
	nv.gr. fr.:								_			•
1	_	Rdg. group	Ranges	MQCI	Set ID	Description	P.t.	Qty.EL %	Qty.WL %	Qty WH %	Qty.EH %	•
0	C.Grp					Description MQCI LNG 15/15°C,REAL,SD,COMP.Q8 K1/2 VI		Qty.EL %	Qty.WL %	Qty WH % 0.10	Qty.EH % 1.00	•
lo 1	C.Grp QUCA	Rdg. group	Ranges		<u>Q8</u>	MQCI LNG 15/15°C,REAL,SD,COMP.Q8 K1/2 VI						•
10 1	C.Grp QUCA	Rdg. group	Ranges QUCA	<u>QTYW</u>	<u>Q8</u>	MQCI LNG 15/15°C,REAL,SD,COMP.Q8 K1/2 VI	7	1.00	0.10	0.10	1.00	•

Support of ASTM Table 1 - Base Skipping For All Dimensions - All Products

With <u>note 00055</u>, an advanced development for ASTM Table 1 calculations has been made available. The advanced development as well as the associated three new function modules described in that note are part of the BCS 3.0 BC set table /QTYW/MQCI_FUNC.

Support of ASTM D1250-52 Table 6 Temperature Interpolation - Crude Oil & Products

With <u>note 00065</u>, an advanced development for ASTM D1250-52 Table 6 bilinear temperature interpolations has been made available. The advanced development described in that note is part of BCS 3.0.

Confirmation of ASTM D1250-08(13)^{e1} Compliance - Crude Oil & Products

In October 2015, the adjunct ADJD1250-E-PDF to ASTM D1250-08(13) was corrected editorially.

QuantityWare confirms that existing BCS ASTM D1250-08(13) implementations are compliant with these editorial corrections.

Confirmation of ASTM D1550-94(15) Compliance - Butadiene

ASTM D1550-94 has been reapproved in 2015. QuantityWare has validated that the BCS 3.0 ASTM D1550 conversion groups are compliant with this latest version.

Confirmation of BS EN 14214:2012+A1:2014 Compliance - Biofuel

BS EN 14214 has been updated and corrected in 2012 and 2014. With BCS 3.0, QuantityWare has validated that the BCS BS EN 14214 conversion groups are compliant with this latest version.

Errata API MPMS Chapter 11.2.4 - LPG/NGL

In September 2011, the errata corrects the statement that API MPMS Chapter 11.2.4 supersedes API MPMS Chapter 11.2.2(M).

Thus, BCS 3.0 pressure correction calculations for NGL/LPG based on API MPMS 11.2.2(M) are compliant with API MPMS Chapter 11.2.4 – GPA TP-27.



Errata API MPMS Chapter 11.5.1 - All Products

In September 2011 (Updated, September 2013), this errata has been issued. It corrects several lb/gal density/weight/volume intra-conversion formulas - conversions of API gravity at 60 °F to densities in air in pounds per gallons. These corrections have been implemented with BCS 3.0.

The corrections affect the calculation results for API gravity conversions to density in air in pounds per gallons: The template conversion groups Q1A1, Q2A1, Q3A1, Q4A1 and Q5A1 thus show deviations in the calculation results at the 9th significant digit.

Example deviation of QuantityWare Test Scenario – after the errata corrections have been implemented in the central QuantityWare development system:

9	• « 🗄	103	8 😪 🚔 🖞 🟠 🛍 🛍		
Measurement	Cockpit: Di	spla	y My Scenario Logs		
i Information					
Test Scenario Scenario ID: Q10L - BCP 1 QuantityWare: Bulk Calculu Con.Grp: Q1A1 - CRUDE: Read.Grp: Q2A1 - MPMS1 UoM Group: QMP - QUANT	0B crude 04: Q ations - Petroleum 2004/08 API 60 °F MPN 1.5.1 API 60 °F - WEIG 1TYWARE API MPMS C	IS MOD	AL		
Last changed: SENGM-0	9.10.2012 10:00:54				
Test mode: Run red on err Appl. area, mess age num					
Appl. area; /QTYW/BCC QCI: Differences in calcula	Mess. number: 500				
	tion				-
				,	
Description	Value	Unit	Measurement unit text	Description	
nput parameters:					^
Observed temperature	75.000000	FAH	degree Fahrenheit	degree Fahrenheit	~
PI gravity (vac., 60 °F)	58.610000	API	API gravity	API gravity	
ransaction quantity:					
ransaction quantity	100,000.000	BBL	barrel [42 gallons(U.S.)]	barrel [42 gallons(U.S.)]	
Calculated quantities:					
Expected quantity	11,712,167.435	KG	kilogram	kilogram	
Calculated quantity	11,712,167.435	KG	kilogram	kilogram	
Expected quantity	25,820,909.277	LB	pound (avoirdupois)	pound (avoirdupois)	
Calculated quantity	25,820,909.277	LB	pound (avoirdupois)	pound (avoirdupois)	
Expected quantity	11,527.192		ton, long (2240 lb)	ton, long (2240 lb)	
Calculated quantity	11,527.192	LTO	ton, long (2240 lb)	ton, long (2240 lb)	
Expected quantity	12,910.455		ton, short (2000 lb)	ton, short (2000 lb)	
Calculated quantity	12,910.455		ton, short (2000 lb)	ton, short (2000 lb)	
expected quantity	11,712.167		tonne ("metric ton" in U.S.)	tonne ("metric ton" in U.S.)	
Calculated quantity	11,712.167		tonne ("metric ton" in U.S.)	tonne ("metric ton" in U.S.)	
expected quantity	99,072.000		barrel [42 gallons(U.S.)] 60°F	barrel [42 gallons(U.S.)] 60°F	
Calculated quantity	99,072.000	BB6	barrel [42 gallons(U.S.)] 60°F	barrel [42 gallons(U.S.)] 60°F	
expected quantity		L	liter	liter	
Calculated quantity	15,898,730.400		liter	liter	
expected quantity		L15	liter - 15 °C	liter - 15 °C	
Calculated quantity	15,741,430.495		liter - 15 °C	liter - 15 °C	
Expected quantity	15,741.430		cubic meter - 15 °C	cubic meter - 15 °C	
Calculated quantity	15,741.430		cubic meter - 15 °C	cubic meter - 15 °C	
Expected quantity		M3	cubic meter	cubic meter	
Calculated quantity		M3	cubic meter	cubic meter	
xpected quantity		KGA	kilogram in air	kilogram in air	
Calculated quantity	11,695,031.298		kilogram in air	kilogram in air	
Expected quantity	25,783,130.433	LBA	pound in air	pound in air	
Calculated quantity	25,783,130.562		pound in air	pound in air	
Expected quantity	11,510.326	LTA	ton, long in air	ton, long in air	
Calculated quantity	11,510.326	LTA	ton, long in air	ton, long in air	<u></u>
Expected guantity	12,891.565	SIA	ton, short in air	ton, short in air	×

Application and Usage Specific Features

BCP/CTP & BCG/CTG Functionality

The Petroleum Measurement Cockpit (*PMC* for BCP & CTP) and Gas Measurement Cockpit (*GMC* for BCG & CTG) are the single access point to BCP,CTP, BCG and CTG functionality for consultants implementing BCS as well as petroleum and gas measurement experts. The following *PMC* and *GMC* enhancements are delivered with BCS 3.0:

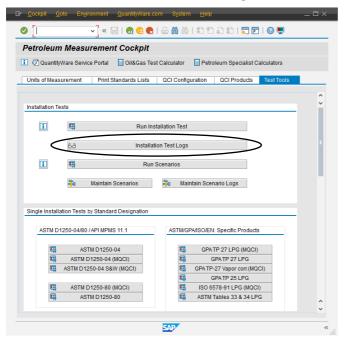
Test Scenario Tool - Calculate Expected Results

Test Scenarios can be created by simply copying the calculated and validated data as expected results. This way, consultants in legacy implementation projects may define several hundred test scenarios within a few days of work in order to validate the migration to QuantityWare BCS conversion groups:

Calculate expecte header io ID: tition: sion group: measure group: node red on error tuanit/Ware MOCI-D aterial data	Z210 My BCP Bu Q210 PP QTA Q1	r first BCP Ilk Calcul RODUCTS	e test scenario	DENSITY 1	Contraction of the second	eading group	
io ID; titon; sion group; measure group; node red on error tuanlityWare MQCI - D	BCP Bu Q210 PF QTA QI	ilk Calcul RODUCTS	ations / Complia S 2004 WEIGHT	DENSITY 1	sparency - Petroleum 15 °C 0210 Re	eading group	
tion: sion group: measure group: node red on error QuantityWare MQCI - D	BCP Bu Q210 PF QTA QI	ilk Calcul RODUCTS	ations / Complia S 2004 WEIGHT	DENSITY 1	sparency - Petroleum 15 °C 0210 Re	ading group	
sion group: measure group: node red on error wantityWare MQCI - D	Q210 PF QTA QI	RODUCTS	S 2004 WEIGHT	DENSITY 1	15 °C 0210 Re	eading group	
measure group: node red on error WantityWare MQCI - D	QTA QI				Contraction of the second	eading group	
node red on error LuantityWare MQCI - D	۲	JANTITYV	VARE LIQUID P.	RODUCTS	WEIGHT		
red on error QuantityWare MQCI - D	<u> </u>						
QuantityWare MQCI - D	<u> </u>						
	ialog box						
						>	<
aterial							<
							-
200 22100							
							-
	100	000 000					
ansaction quantity		000.000					
esult							
Parameter		C	Value	U 🎹 A	ddl.qty U	. M 🎹 📘	·
bserved temperature			20.00	CEL	71,840.172 KG		
bserved density (vac.)		723.000000	KGV	158,380.468 LB		
est temperature (obs.	dens.)		15.00	CEL	70.706 LTC		-
)ensity(vac.) at obs. te	mp.		718.401720	KGV	71.840 TO		
lase density(vac.)			723.000000	KGV 🔺	100,000.000 L		
CF observed to base			0.99364	VCF 🗸	98,986.860 L12		
01 00001100 00000			111.	< >		< >	
	'arameter bserved temperature bserved density (vac. est temperature (obs ensity(vac.) at obs. te ase density(vac.)	rage Location tch 100 suitt 100 arsandton quantity 100 suitt 100 arameter 100 bserved temperature bserved density (vac.) est temperature (obs. dens.) ensity(vac.) at obs. temp. ase density(vac.)	rage Location tch ansaction quantity 100000.000 suit arameter C bserved temperature bserved density (vac.) est temperature (obs. dens.) ensity(vac) at obs. temp. ase density(vac.)	ansaction quantity 100000.000 L suit	ansaction quantity 100000.000 L suit	ansaction quantity Location ansaction quantity Location ansaction quantity Location suit Addi.qty U III bserved temperature 20.00 CEL 71,840.172 KG bserved density (vac.) 723.000000 KGV 158,380.468 LB cellstate est temperature (obs. dens.) 15.00 CEL 71.840 172 70.706 LT cellstate ase density(vac.) at obs.temp. 171.840 172 KGV 71.0840 TG 100.000.000 L 100.	suit Addi.qty U M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M M

Installation Test Log

For each run of the installation test, a log is written to the installation test log database.



Additional List Printing Reports

List printing reports are delivered with BCS 3.0 for the following measurement standards:

- 1. DIN 51757 Density in Air
- 2. API MPMS Chapter 11.2.5 LPG Vapor Pressure
- 3. Linear VCF Model
- 4. ISO 6578 Print Customer Specific Customizing Data
- 5. Physical Property Data Sets Print Sets via ALV Lists:

Ga	Measurement Cockpit: Print Phy	sical Pro	operties	of H	ydrocarbons				
-P	int PP Set								
Phy	sical Property Data Sets - Natu	ral Gas I	Compon	ents					
	it Set ID → Dis play Set Components		oompon						
	it bet ID → Dis playbet Components d Column 3 to 8 → DisplaySet Header Data					- L	_		
•									
Set ID	Description	B. Tmp. HV	Base temp	Unit	Unit description	B.Press.HV	B.Press.VL	Unit	Unit description
00	QW: GPA 2172-96. 60"F/14.696 PSI	60.00	60.00	EAH	degree Fahrenheit	14.696	14.696	PSI	pound-force per square Inch
21	QUANTITYWARE:25°C / 0°C ISO 6976 DATA	25.00	0.00	CEL	degree Celsius	101 325	101.325	KPA	kilopascal
02	QUANTITYWARE: 15°C / 15°C ISO 6976 DATA	15.00	15.00	CEL	degree Celsius	101.325	101.325	KPA	kilopascal
23	QUANTITYWARE:0°C / 0°C ISO 6976 DATA	0.00	0.00	CEL	degree Celsius	101.325	101.325	KPA	kilopascal
04	QUANTITYWARE: 15°C / 0°C ISO 6976 DATA	15.00	0.00	CEL	degree Celsius	101.325	101.325	KPA	kilopascal
Q5	QUANTITYWARE 20°C / 20°C ISO 6976 DATA	20.00	20.00	CEL	degree Celsius	101.325	101.325	KPA	kilopascal
Q6	QUANTITYWARE:25°C / 20°C ISO 6976 DATA	25.00	20.00	CEL	degree Celsius	101.325	101.325	KPA	kilopascal
07	QUANTITYWARE:25°C / 15°C ISO 6976 DATA	25.00	15.00	CEL	degree Celsius	101.325	101.325	KPA	kilopascal
08	QUANTITYWARE: 15°C / 15°C ISO 6578 DATA	15.00	15.00	CEL	degree Celsius	101.325	101.325	KPA	kilopascal
29	QUANTITYWARE 15 *C LPG ISO 6578 DATA	288.150	288.150	К	Kelvin	101.325	101.325	KPA	kilopascal
QA	QW: GPA 2145-03, REV.2, 60°F/14.696 PSI	60.00	60.00	EAH	degree Fahrenheit	14.696	14.695	PSI	pound-force per square inch
QB	QW: GPA 2145-09 60°F/14.696 PSI	60.00	60.00	EAH	degree Fahrenheit	14.696	14.696	PSI	pound-force per square inch
ac	QW: GPA 2145-09 15 °C/101.325 KPA	15.00	15.00	CEL	degree Celsius	101.325	101.325	KPA	kilopascal
QD	QW: GPA 2145-03, REV.2, 15*C/15*C/101, 325	15.00	15.00	CEL	degree Celsius	101.325	101.325	KPA	kilopascal
QE	QW: GPA 2145-09 BASED 60°F/15.025 PSI	60.00	60.00	EAH	degree Fahrenheit	15.025	15.025	PSI	pound-force per square incl
QE	QW: GPA 2145-09 BASED 60°F/14.730 PSI	60.00	60.00	EAH	degree Fahrenheit	14.730	14.730	PSI	pound-force per square inch
ac	QW: GPA 2145-09 BASED 60°F/14.650 PSI	60.00	60.00	FAH	degree Fahrenheit	14.650	14.650	PSI	pound-force per square Inch
QH	QUANTITYWARE 60 *F LPG GPA 2145-09 DATA	60.00	60.00	EAH	degree Fahrenheit	14.696	14.695	PSI	pound-force per square inch
a	QUANTITYWARE 20 °C LPG ISO 6976 DATA	293.150	293.150	К	Kelvin	101.325	101.325	KPA	kilopascal
a,	QUANTITYWARE 20°C / 20°C GOST 30319.1-96	293.150	293.150	К	KelMo	0.101325	0.101325	MPA	megapascal
ак	QUANTITYWARE 20*C/20*C GOST 22667-82(93)	293.150	293.150	К	Kelvin	0.101325	0.101325	MPA	megapascal
	QUANTITYWARE 0°C / 0°C GOST 22667-82(93)	273.150	273.150	К	Kelvin	0.101325	0.101325	MPA	megapascal



PDF List Printing For Compression Factor Standards

For all compression factor standards in the Gas Measurement Cockpit, lists can be printed as local PDF files:

🔄 Cockpit Goto Environment QuantityWare.com System Help	_ = ×
📀 🚺 🚽 🚽 କାରେ ରେ ବୋଳି 🕅 ଜୋଇ ଅଧିକର ଆଳେ 🖉 💭	
Gas Measurement Cockpit	
1 🖗 QuantityWare Service Portal 🔲 Oil&Gas Test Calculator 🔲 Natural Gas Specialist Calculator	
Units of Measurement Print Standards Lists QCI Configuration Gas Analysis Test Tools	
Physical Property Data - Gas Components NGL Data & Volume Correction Factors Image: Compare Data Sets Image: Compare Data Sets	
bd ISO 6078 NGL Specific Data	
ISO Standard Property Data Natural Gas - Compression Factors	N
යියි ISO 6976 Property Data 🔲 AGA Report No. 8 - Detail	
යියි ISO 6578 Property Data 🔲 GOST 30319 VNIC SMV - Detail	
රිථ ISO 13443 Conversion Factors 🔲 GERG88 / AGA8 - Gross	/
රියි ISO 6578 LNG Specific Data	/
SAP	* //.

BCP/CTP & BCG/CTG Usability

Reflecting the constructive and important feedback from customers and consultants who work with the Petroleum and Gas Measurement Cockpit, the following PMC and GMC usability enhancements are delivered with BCS 3.0:

Enhanced Usability - List Printing

The Petroleum Measurement "Print Standards List" Screen has been redesigned. Single Lists can be selected for the three relevant types of measurement standards:

- 1. CTL Standards
- 2. CPL Standards
- 3. Mass/Weight/Volume Intraconversion Standards

🛾 🙆 QuantityWare Service Portal 🛛 📗 Oil&Gas Te	est Calculator 🔲 Petroleum Specialist Calculators	
Units of Measurement Print Standards Lists	QCI Configuration QCI Products Test Tools	
All Standard Lists for Material		
1 🧟 Print	Lists For Material	
Single Lists - CTL (Corrections for the Effect of Terr	perature on Liquid) Standards	
Crude Oil & Products	Liquefied Petroleum Gas - LPG	
ASTM D1250	GPA Technical Publications	
	SU ISO 6578 SU ASTM D1250	
Superific Country Specific	Security Specific	
Asphalt, Bitumen & Tar	Bulk Chemicals & Bio Fuels	
ASTM D4311	ASTM D1555	
STM D633 STM D2962	STM D1550 St. Linear V/DCF	
Superific Country Specific	Country Specific	
Single Lists - CPL (Corrections for the Effect of Pre-	ssure on Liquid) Standards	
Crude Oil & Products	Liquefied Petroleum Gas - LPG	
ASTM D1250	API MPMS Chapter 11.2.5	
API MPMS Chapter 11.2.1	API MPMS Chapter 11.2.2	
Single Lists - Mass/Weight/Volume Intraconversion	Standards	
Crude Oil & All Products		
ASTM D1250	Country Specific	

 $\langle \rangle$

designation. Upon selection of a standa	ard desig	nation, all	available versions	are displayed:
Er <u>P</u> rogram Edit <u>G</u> oto System <u>H</u> elp	_ 0 × 6 6	gram <u>E</u> dit <u>G</u> oto Syster	n Help	_ 🗆 ×
🖉 💽 🗸 🗧 😪 😪 😒 🚔 🖞 🖗 🏷 🖘 🖘 🖓 🗐 🖉 💻	0	~] « [1 @ @ @ 🖨 // // I I I I I I I I	9 🕜 🖳
Petroleum Measurement Cockpit: ASTM D1250 - CTL Lists	Pe	roleum Measuremen	t Cockpit: ASTM D1250-04 Lists	
۵	æ]		

Select product and table

Product Table

Select parameter range limits

API Gravity from: API Gravity to: API Gravity increment:

Temperature (*F) from: Temperature (*F) to: Temperature (*F) increment:

Number of pages Number of pages

 $\langle \rangle$

Crude oil - A v Table 5 - API gravity, 60 °F, obs. to base density v

Ranges 61.0-100.0 340.0 0.5 0.1-5.0

 58.0 58.0

 302.0
 572.0

 1.0
 0.1-5.0

SAP

189

Within each section, the lists are arranged by product groups and measurement standard I:

For each list	, the minimu	m and maximun	n allowed ranges	are displayed	d. User input is
automatically	y corrected (e.g. if "from" val	ue is larger than '	"to" value).	

 $\langle \rangle$

r List Edit Goto System Help _ □ ×	7	QTYW_STA	NDARD_	IST_TEMP	.PDF - Ad	lobe Acri	obat Rea	der DC	auc.	-	-		A	alloc a	-	- 🗆 🛛
ଡ 🔄 👻 🖌 😸 🕲 🕲 🕲 🕲 👘 👘 👘 🖏 🖏 🖏 🖏 🖓 💭 💭 💭 💭 💭 💭	F	ile Edit V	iew Wi	ndow H	zlp											
Petroleum Measurement Cockpit: ASTM D1250-04 Lists	1	Home	Tools	- 3	QTYW_S	TANDA	RD >	c.							? ×	Sign I
Export to PDF	11	28.06	2016	Def a	oleum mei	intretient	corket!		1250-04	Lista		- 1				
etroleum Measurement Cockpit: ASTN D1250-04 Lists 3					MI		-14 - Tal									
ASTM D1250-04 - Table 5A		tron 10.0	BABIEL	atton: B	ruda PI Gravit ane densi	Lyat so	19									- 11
Temp. Product: Crude		50 5.4	API 0:	avity	38.2	31.3	38.4	30.5	30.6	fros :	10.0 to	30.5				- 8
from Base: API Gravity at 60 "F 1.0- Calculation: Base density to		10.1		35.4	35.5	35.6	35.8	35.9 35.0 35.8 35.8 35.8	34.0 349.0 349.0 359.0	36,1 386,1 366,1 366,1	34.22	36.3 36.3 36.3 36.3 38.3				
3.4 API Gravity from 30.0 to 30.9 *F 30.0 30.1 30.2 30.3 30.4 30.5 30.6 30.7 30.8 30.9		9.4	8 35.3	35.4	35.5		35.7 35.7 35.7		35.9 35.9 35.9			38:3				
1.0-34.634.734.834.935.035.135.335.435.535.6 0.9-34.634.734.834.935.035.135.235.435.535.6		0.1	35.1	38.4 38.4 39.4	35.5	38.6 38.6 38.6 38.6 38.6 38.6 38.6	35.7 35.7 35.7	35.8 35.0 35.0 35.8 35.8	25.0	2000000 000000	36.2 36.1 36.1 36.1 36.1 36.1	36.2				- 1
0.8- 34.6 34.7 34.8 34.7 34.8 34.9 35.0 35.1 35.2 35.3 35.5 35.4 35.6 35.6 35.4 35.4 35.4 35.4 35.4 35.4 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.7 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.7 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 35.6 3		9.1 8.3 8.4	35.1	35.3 35.3 35.3 35.3 25.3	35.5	35.6 35.6 35.5 35.5 35.5	335.766	35.8 35.8 35.8 35.8 35.8	35.9 35.9 35.9 35.9 35.9	36.0	36.1 36.1 36.1 16.1 36.1	36.2 36.2 36.2 36.2 36.2				
0.5- 0.4- 34.6 34.7 34.8 34.9 35.0 35.1 35.2 35.3 35.4 35.5 35.5 34.8 34.9 35.0 35.1 35.2 35.4 35.4 35.5 35.4 35.5 35.4 35.5 35.4 35.5 35.4 35.5 35.5 35.4 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5 35.5		0.1 0.0 0.1	35.2	25.2	35.4 35.4 35.4 35.4	35.5 35.5 35.5 35.5	35.6 35.6 35.6 35.6	35.7 25.7 35.7 35.7	25.9 25.6 35.8 35.8	36.0 36.0 35.9 35.9	36.1 36.1 36.1 36.1 36.0	36.2 36.2 36.2 36.2 36.2				- 1
0.3- 34.5 34.7 34.8 34.9 35.0 35.1 35.2 35.3 35.4 35.5 0.2- 34.5 34.6 34.8 34.9 35.0 35.1 35.2 35.3 35.4 35.5 0.1- 34.5 34.6 34.7 34.9 35.0 35.1 35.2 35.3 35.4 35.5		0.1	E 35.5	35.3	35.4 35.4 35.4	35.5	35.6 35.6 35.6	35.7 35.7 35.7	25.8 35.8 25.6	35.9 35.9 35.9	36.0	36.2 36.1 36.1				
0.0 34.5 34.6 34.7 34.8 35.0 35.1 35.2 35.3 35.4 35.5 0.1 34.5 34.6 34.7 34.8 34.9 35.1 35.2 35.3 35.4 35.5		7.1 7.1 7.1	14 35.3		35.4	35.5 35.5 35.5 35.5	15.6 35.6 35.6	35.7 35.7 35.7	35.8 35.8 35.8	35.0 35.0 35.0	36.0 36.0 36.0	36.1 36.1 36.1				
0.2 34.5 34.6 34.7 34.8 34.9 35.0 35.2 35.3 35.4 35.5 0.3 34.5 34.6 34.7 34.8 34.9 35.0 35.1 35.3 35.4 35.5		77777		35.2 35.7 35.7 35.7	15.1 35.3 35.1 35.1 35.1	35.4 35.4 35.4 35.4 35.4 35.4	35.6 35.5 35.5 35.5	35.7 35.7 35.6 35.6 35.6	35.8 35.8 35.8 35.7 35.7	35.0 35.0 35.0 35.0	36.0 36.0 36.0 35.0 35.0	36.1 36.1 36.1 36.1 36.1				- 1
0.4 34.5 34.6 34.7 34.8 34.9 35.0 35.1 35.2 35.4 35.5 0.5 34.5 34.6 34.7 34.8 34.9 35.0 35.1 35.2 35.3 35.5		2.5	35.1	35.2	35.3	35.4	35.5	35.6	35.7	35.8	34.0	36.1				
0.6 34.5 34.6 34.7 34.8 34.9 35.0 35.1 35.2 35.3 35.4 0.7 34.5 34.6 34.7 34.8 34.9 35.0 35.1 35.2 35.3 35.4	- 1	0.1 6.1	15.1 15.1 15.1	35.2 35.2 35.3	35,3 35,3 35,3	$\frac{15,4}{35,4}$	35.5 35.5 35.5	35.6 35.6 35.6	35.7 35.7 35.7	35.8 35.8 35.8	35,0 35,0 35,0	36.0 36.0 36.0				
0.8 34.5 34.6 34.7 34.8 34.9 35.0 35.1 35.2 35.3 35.4 0.9 34.4 34.6 34.7 34.8 34.9 35.0 35.1 35.2 35.3 35.4			35.0	35.1 35.1 35.1	35.3	35.4 35.4 35.3 35.3 35.3 35.3	35,5 35,5 35,5 35,6 35,6	35.6 35.6 35.6	35.7 35.7 35.7 35.7 35.7	35.8 35.8 35.8	35.9 35.9 35.9 35.9	36.0				
1.0 34.4 34.5 34.7 34.8 34.9 35.0 35.1 35.2 35.3 35.4 1.1 34.4 34.5 34.6 34.8 34.9 35.0 35.1 35.2 35.3 35.4		6.3	E 35.0	35.1	35.2 35.2 35.2	35.3	35.6	35.6 35.6 35.5	25.7	35.6	15.0	36.0				- 1
1.2 34.4 34.5 34.6 34.7 34.9 35.0 35.1 35.2 35.3 35.4 1.3 34.4 34.5 34.6 34.7 34.9 35.0 35.1 35.2 35.3 35.4		diam'r	35.0	255.11	35.22	35.3	10000	35.5	23555	35.77 35.77 35.77	35.8	14.0 36.0 36.0				
SAP «	ε															

The standard print design is set to a black & white layout (classic list):

j,

The option to print a list to a local PDF file is available in each classic list print out.

Active Standard Designation: ASTM 1250-08(13)

Select ASTM D1250 Version for Printing

 \leftrightarrow

250-08(13) [Standard Guide for Use of the Petroleum Measurement Tables Temperature Corrections

ASTM D2150-04 Standard ASTM D1250-04 / API MPMS Chapter 11.1 - 2004

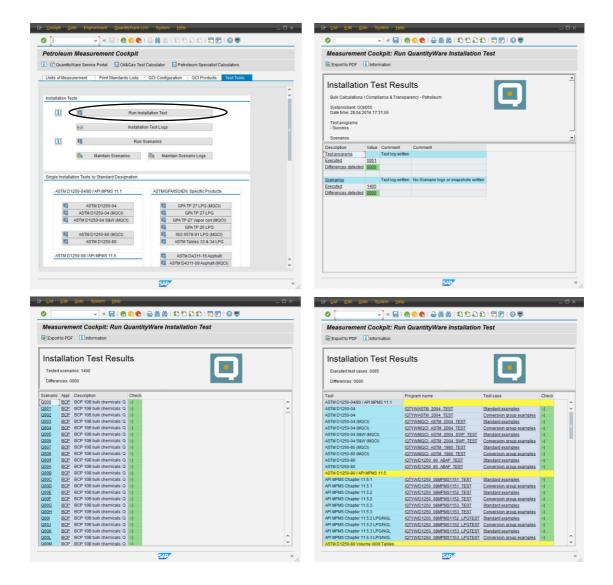
ASTM D1250-80 Standard ASTM D1250-80 / API MPMS Chapter 11.1 - 1980

SAP

ASTM D1250-52 Historical Standard ASTM D1250-52 - Table 6

Enhanced Usability - Installation Test

The Installation Test, which is executed in your client 045 in one dedicated system (typically DEV), is now executed with one click. A log is written to the database for each run and the test results are displayed in one ALV list with navigation options to all details:





Enhanced Usability - Single Test Reports

Each single test report is equipped with the common design utilizing ALV lists.

	. 200	STatem Helb		`	C Dat Folt 7000 State			
Ø		💌 « 🖯 I 🕲 😣 🕄 🖨 🕅 🚯 I 🎗	1111112100		♥	« 🔚 👧	8	🖨 🕅 🕼 🎝 🎝 🎝 🎝 🎵 🖻 🥥 🖷
Test AS7	M D125	50-04 Installation			Test ASTM D1250-04	Installati	on	
Information	n				1 Information			
Convers All les tosse ex	-	up examples			Conversion grou Example:0101 Corry, Group:0108 CRUDE OIL 2004 API GRAVIT		nple	es
Example no					1			
<u>101</u>		CRUDE OIL 2004 API GRAVITY 60 *F			Parameter	Value	UoM	Message
102		PRODUCTS 2004 API GRAVITY 60 *F			Input			
<u>103</u>		SPEC. APPLICATIONS 2004 API 60 *F			Observed Density(vac)	10,0000		
<u>104</u>		LUBES 2004 API GRAVITY 60°F				20,0000	CEL	
	Q109	CRUDE OIL 2004 RELAT. DENSITY 60 *F			Observed temperature(material)	20,0000	CEL	
<u>106</u>		PRODUCTS 2004 RELAT. DENSIY 60 *F			Hydrometer flag	х		Note: X = No correction,' ' = correction is applied
<u>107</u>		SPEC. APPLICATIONS 2004 RD 60 *F			Observed Quantity	100,000	M3	
108		LUBES 2004 RELAT. DENSIY 60°F			Result			
<u>109</u>		CRUDE OIL 2004 DENSITY 15 °C			Quantity	99.901,818	KG	
<u>110</u>		PRODUCTS 2004 DENSITY 15 °C			Quantity	99.694,104	L15	
111		SPEC. APPLICATIONS 2004 D 15 °C			Quantity	99.512,059		
<u>112</u>		LUBES 2004 DENSITY 15°C			Quantity	26.345,350		
113		CRUDE OIL 2004 DENSITY 20 °C			Quantity	100.000,000	L20	
<u>114</u>		PRODUCTS 2004 DENSITY 20 *C						
<u>115</u>		SPEC. APPLICATIONS 2004 D 20 °C						
<u>116</u>	Q407	LUBES 2004 DENSITY 20°C						
		SAP						SAD

Enhanced Usability - Customizing Data Access

When accessing customizing transactions, the data is available in "Change" mode as defined by the SAP standard.

Enhanced Usability - Cockpits

With BCS 1.0B CSP03, access to PMC and GMC functions, which are not relevant in e.g. production clients, can be turned off in such clients, simplifying the user experience. With BCS 3.0, additional functions may be turned off, via one central customizing transaction:



Change View "Disable Measurement Cockpit Functions"	: Details
🔪 New Entries 🗈 🖶 📪 🖨 🔒 🔛	
plication Bulk Calculations / Compliance & Transparency - Petroleum	¥
isable Measurement Cockpit Functions	_
Coclipit: Units of Measurement	
Disable UcM Maintenance Push Buttons in Tab Strip	
Colpit Print Standards Lists - PMC Only	
Disable List Print Push Buttons for Standards in Tab Strip	
Cockpit: QCI Configuration	
Disable Explain Check & Test Push Button in Tab Strip	
Cockpit: QCI Products - PMC only	
Disable Change Legacy Conversion Groups in Tab Strip	
Cockpit: Test Tools	
Disable Change or Copy of Test Scenarios	
Disable Create or Copy of Test Scenarios	
Disable Deletion of Test Scenarios	
Disable Deletion of Test Scenario Logs	
Cockpit Menu Access	
Disable Access to Single Customizing Transactions via Menu "Goto"	
Disable Access to Technical Tools via Menu "Environment"	

Enhanced Usability - Test Scenario Maintenance

With BCS 3.0, test scenario execution and maintenance has been completely redesigned, such that all scenario log activities are available under one single main activity:

as Measurement Cockpit				
🖸 Quan	tityWare Service Portal 🔟 Oil&Gas Test Calculator 🛛 📊 Natural Gas Specialist Calcu	lator		
Units of Me	easurement Print Standards Lists QCI Configuration Gas Analysis Tes	t Tools		
Installation	lests			
🗊 🕮 Run Installation Test				
	6-â Installation Test Logs			
1	🛱 Run Scenarios			
	🛱 Run Scenarios			
	Run Scenarios	>		
		>		
	🖗 Maintain Scenarios 🗲 🎼 Maintain Scenario Logs	>		
		>		
Single Insta	🖗 Maintain Scenarios 🗲 🎼 Maintain Scenario Logs	>		
Single Insta	Maintain Scenarios Maintain Scenario Logs allation Tests by Standard Designation Pressure Gas & Property Data Natural Gas Liquids (NGL)	>		
Single Insta Low P	Maintain Scenarios Maintain Scenario Logs allation Tests by Standard Designation Pressure Gas & Property Data MQCI ISO 6976 Property Calc. MQCI ISO 6976 Property Calc.	>		
Single Insta	Maintain Scenarios Maintain Scenario Logs allation Tests by Standard Designation Pressure Gas & Property Data MQCI ISO 6976 Property Calc. ISO 6976 Property Calculation GPA TP 27 - NGL GPA TP 27 - NGL	>		
Single Insta Low P	Maintain Scenarios Maintain Scenario Logs allation Tests by Standard Designation Pressure Gas & Property Data MQCI ISO 6976 Property Calc. ISO 6976 Property Calc. GPA TP 27 - NGL GPA TP 27 - NGL GPA TP 27 - NGL GPA TP 27 - VGL GPA T	>		
Single Insta Low P	Maintain Scenarios Maintain Scenario Logs allation Tests by Standard Designation Pressure Gas & Property Data MQCI ISO 6976 Property Calc. ISO 6976 Property Calc. ISO 6976 Property Calc. ISO 13443 Property Conversion	>		
Single Insta Low P 폎 폎	Maintain Scenarios Maintain Scenario Logs allalion Tests by Standard Designation Pressure Gas & Property Data MQCI ISO 6976 Property Calc. ISO 6976 Property Calculation ISO 13443 Property Conversion ISO 13443 Property Conversion MQCI ISO 6578 NGL	>		
Single Insta Low P	Maintain Scenarios Maintain Scenario Logs Macci ISO 6976 Property Calculation Macci ISO 6578 NGL Maintain Scenario Logs Macci ISO 6578 NGL			

BCP/CTP & BCG/CTG Security

QuantityWare BCS 3.0 will be certified by Virtual Forge.

BCP and BCG Corrections

QuantityWare notes 000055, 000057, 000058, 000060, 000061, 000062, 000064, 000065 and 000066 are contained in BCS 3.0:

Note	Short Text	Link
Number		
000055	ASTM Table 1 – Base skipping –	https://www.quantityware.com/wp-
	Calculation model extensions	content/uploads/note-000055.pdf
000057	Virtual Forge Certification – Deletion	https://www.quantityware.com/wp-
	of obsolete reports	content/uploads/note-000057.pdf
000058	BCS CSP03 Installation Test – FLTP	https://www.quantityware.com/wp-
	comparison issue	content/uploads/note-000058.pdf
000060	Linear DCF list printing – rounding	https://www.quantityware.com/wp-
	issue	content/uploads/note-000060.pdf
000061	DIN 51757 X Tables Asphalt	https://www.quantityware.com/wp-
	Correction / Range Extension Dump	content/uploads/note-000061.pdf
000062	Message /QTYW/QCI 019 raised	https://www.quantityware.com/wp-
	erroneously – SAP PRA	content/uploads/note-000062.pdf
000064	ISO 6578 – LNG: intermediate	https://www.quantityware.com/wp-
	parameter rounding & transport	content/uploads/note-000064.pdf
000065	ASTM D1250-52 Table 6 –	https://www.quantityware.com/wp-
	Temperature Interpolation	content/uploads/note-000065.pdf
000066	Usage Key installation issue after	https://www.quantityware.com/wp-
	system copy with SID rename	content/uploads/note-000066.pdf

In addition to these corrections and advanced developments - already delivered as individual notes - the following minor enhancements and corrections within the PMC and GMC are provided:

- A warning message is displayed in the conversion group log if the "extend range of standard implementation" flag is set. This way, the importance to define range checks if ranges are extended is emphasized.
- The unit conversion calculator results in the PMC and GMC are printed as classic lists if F8 is selected.
- ISO 13443 factors can be maintained with 14 decimals. Conversion factors for molar or mass based heating values between 60 °F and any ISO 13443 temperature (15 °C, 20 °C ...) can be maintained in order to e.g. map contractually defined conversion factors.