

## Note: 000124

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### Overview

Number	000124
Description	ABNT NBR 5992 - 2016 Range Extensions
Version	01 from 20.12.2024
Status	Released to Customer
Language	EN
Responsible	Markus Seng, Guido Jager
Product	BCP
Category	Advanced Development

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### Symptom

ABNT NBR 5992 - 2016 has extended the upper limit of the validity of the fundamental equation for density calculations from 40 °C to 50 °C.

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### Cause

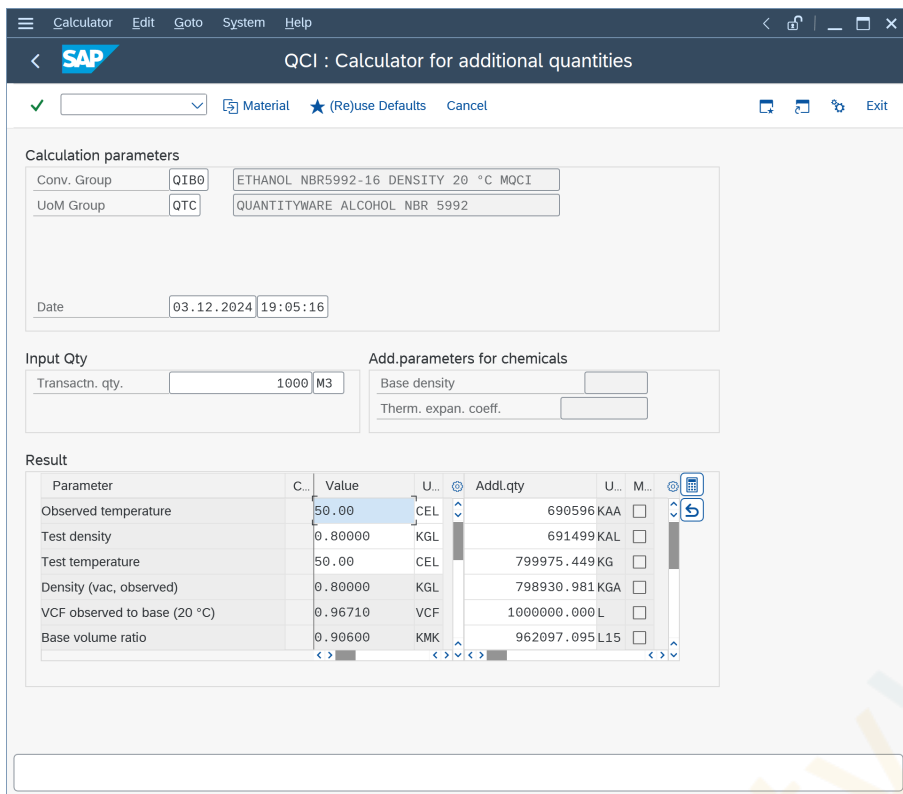
Measurement standard update.

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### Solution

With this note, the existing implementation of ABNT NBR 5992 - 2016 has been extended to allow temperature values up to 50 °C. The corresponding print report has been adjusted for this new limit as well; the test report has been extended with additional examples:

Test calculation:



**QCI : Calculator for additional quantities**

Material: ETHANOL NBR5992-16 DENSITY 20 °C MQCI  
 UoM Group: QUANTITYWARE ALCOHOL NBR 5992

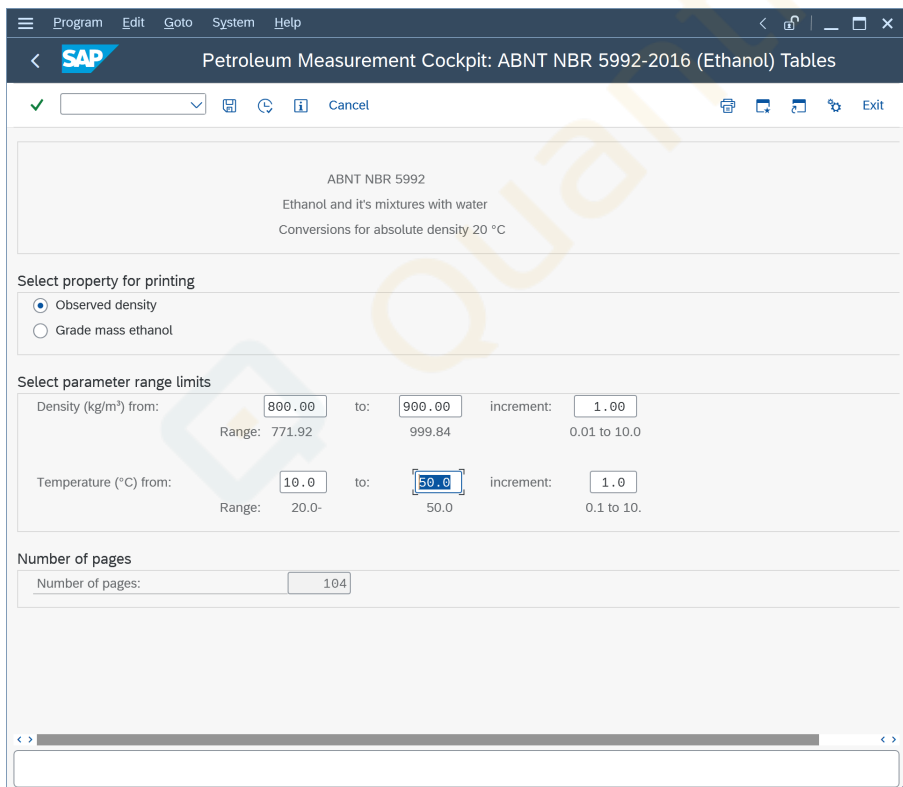
Date: 03.12.2024 19:05:16

Input Qty: Transactn. qty. 1000 M3

Add.parameters for chemicals:  
 Base density: [ ]  
 Therm. expan. coeff. [ ]

Parameter	C..	Value	U..	⊗	Addl.qty	U..	M..	⊗
Observed temperature		50.00	CEL		690596	KAA		
Test density		0.80000	KGL		691499	KAL		
Test temperature		50.00	CEL		799975.449	KG		
Density (vac, observed)		0.80000	KGL		798930.981	KGA		
VCF observed to base (20 °C)		0.96710	VCF		1000000.000	L		
Base volume ratio		0.90600	KMK		962097.095	L15		

Print report via PMC:



**Petroleum Measurement Cockpit: ABNT NBR 5992-2016 (Ethanol) Tables**

ABNT NBR 5992  
 Ethanol and it's mixtures with water  
 Conversions for absolute density 20 °C

Select property for printing:  
 Observed density  
 Grade mass ethanol

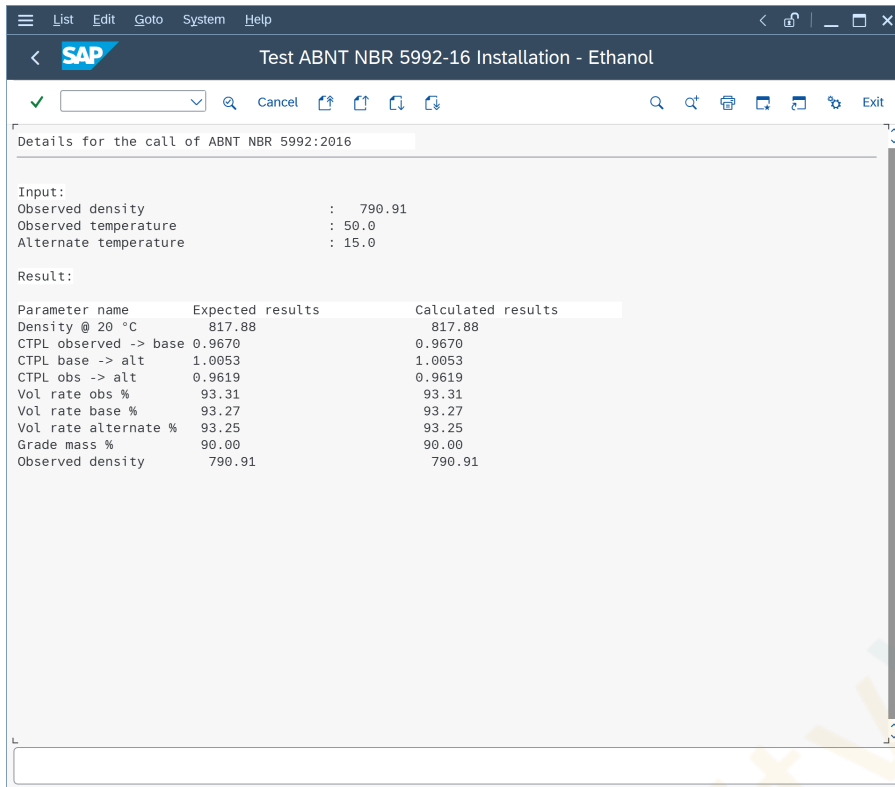
Select parameter range limits:

Density (kg/m³) from: 800.00 to: 900.00 increment: 1.00  
 Range: 771.92 999.84 0.01 to 10.0

Temperature (°C) from: 10.0 to: 50.0 increment: 1.0  
 Range: 20.0- 50.0 0.1 to 10.

Number of pages:  
 Number of pages: 104

### Test report in PMC - Example:



Details for the call of ABNT NBR 5992:2016

Input:

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Observed density      : 790.91
Observed temperature  : 50.0
Alternate temperature  : 15.0
  
```

Result:

Parameter name	Expected results	Calculated results
Density @ 20 °C	817.88	817.88
CTPL observed -> base	0.9670	0.9670
CTPL base -> alt	1.0053	1.0053
CTPL obs -> alt	0.9619	0.9619
Vol rate obs %	93.31	93.31
Vol rate base %	93.27	93.27
Vol rate alternate %	93.25	93.25
Grade mass %	90.00	90.00
Observed density	790.91	790.91

## Transport Reference

SAP Release	Transport	File Name	Notes
ECC600	QOIK900394	NOTE-00124-30x.SAR	
S/4 HANA	QOIK900394	NOTE-00124-30x.SAR	

## Validity

SAP Release	From SP	To SP	In SP Shipment
ECC600	BCS 3.0 CSP03	BCS 3.0 CSP04	BCS 3.0 CSP04
S/4 HANA	BCS 3.0 CSP02	BCS 3.0 CSP03	BCS 3.0 CSP03