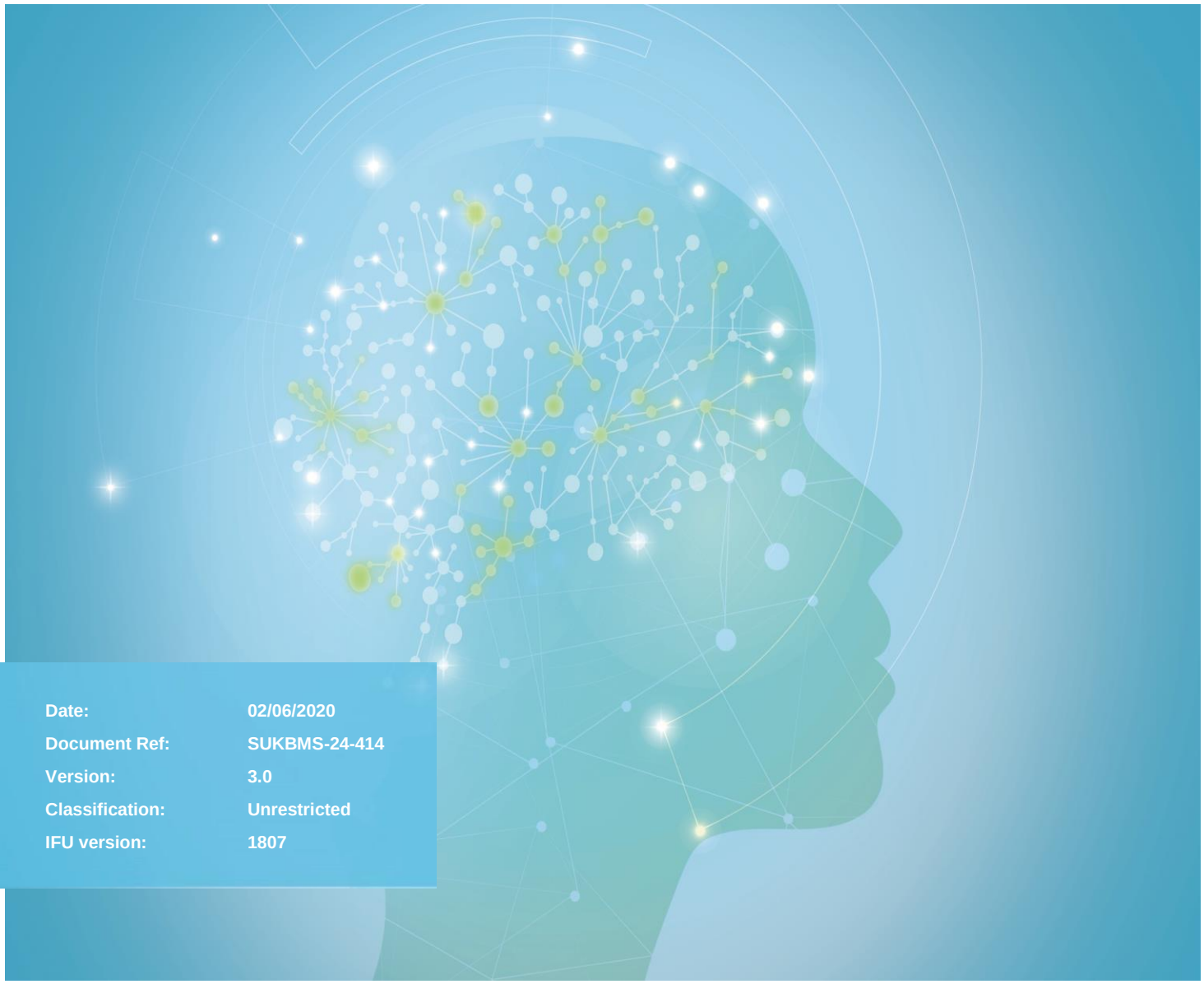
Routine Use Training Workbook

RU-20



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Contents

Disclaimer

Please note the information in this presentation, workbook or training session provided by Sysmex should not be used as an alternative to your sites Standard Operating Procedure (SOP)/Contract. If you have any particular questions regarding any site specific use of reagents, consumables and/or equipment please contact your Management Team.

Revision History

Revised Section	Alteration	Name	Date
All sections	New document	K. Elgerton	February 2019
All sections	Updated to reflect online training course	N.Bowen	March 2020
Title Page	Document name changed from RU-20 Information Workbook to RU-20 Routine Use Training Workbook	N.Bowen	2nd June 2020

Reference Documents

Document title	Version	Date
RU-20_IFU	1807	July 2018

RU-20 Overview

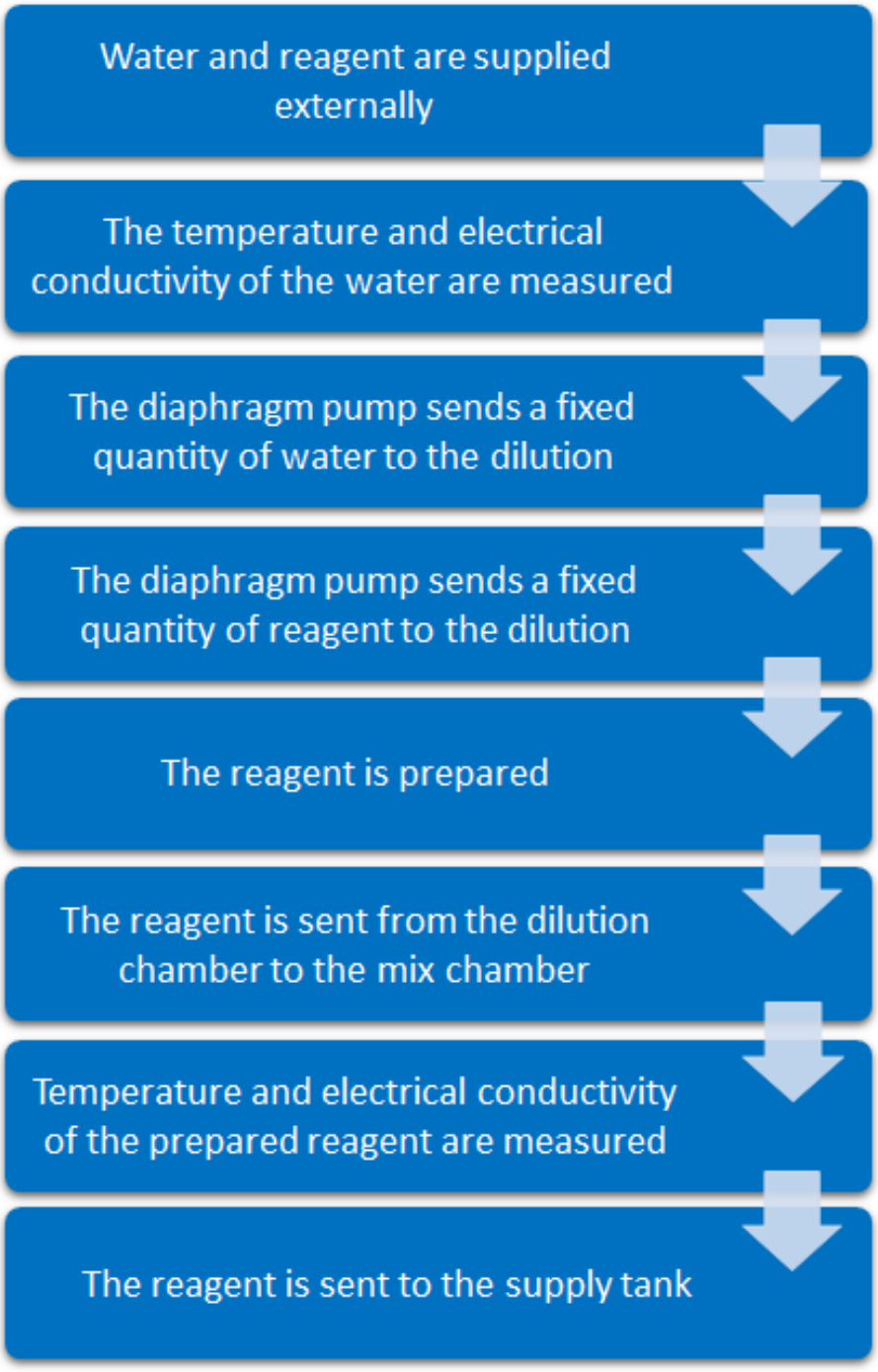
The RU-20 reagent unit is installed as a peripheral device that dilutes a concentrated reagent (CellPack DST) with RO (Reverse Osmosis) water and supplies a ready-to-use reagent to the connected haematology analysers (XN-series). The standard RU-20 unit can be upgraded to allow the supply of reagent to a larger number of analysers and the table below highlights the differences. The use of the upgrade kit will be laboratory dependent, so please check this with the relevant laboratory staff member.

Facts and Figures	
Connectable analysers	XN-10, XN-20
Nº of analysers to be connected	3x XN-10/20
With addition of upgrade kit	4x XN-10/20
Throughput	9 L/hour
Throughput with upgrade kit	12 L/Hour
Operating temperature	15°C to 30°C

Principles of Analysis

Operation

The flowchart below shows the general sequence of processing by the instrument.



Reagents

The RU-20 analyser uses a reagent called CellPack DST.

CellPack DST (Diluent Strong) is a concentrated reagent, that when diluted with RO water, produces a ready-to-use reagent that is the same as the CellPack DCL (Diluent Classic) reagent. CellPack DCL is a reagent that is routinely found on XN-Series analysers.

One box of CellPack DST (10L) is equivalent to twenty five boxes of CellPack DCL (10L).

Storage & Expiration

CellPack DST should be stored at 2 to 35°C (Do not freeze).

Before opening, the reagent can be used until the expiration date stated on the reagent box.

After opening, keep at a temperature from 15 to 30°C, and use within 60 days. This on-board stability of 60days will be calculated by the RU-20, and the CellPack DST will be given an on-board expiry date. If this on-board expiry date is reached, the RU-20 will alarm to prompt the user to replace the CellPack DST. (See the troubleshooting section on dealing with alarms).

Analyser components

Main Components

1. **Main Switch –** Turns the main power of the instrument on and off.

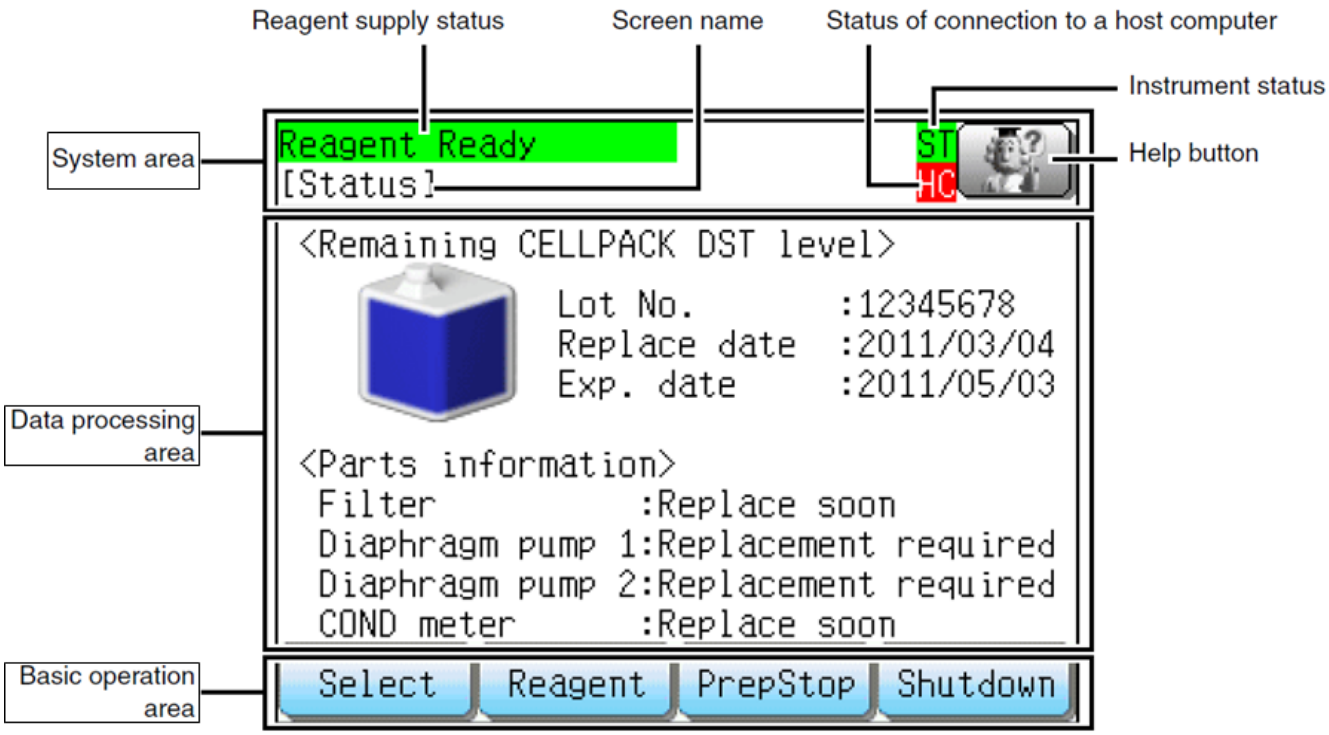
2. **LCD Display –** The ‘touch panel’ shows the status of the instrument and is used to operate the analyser.

3. **Contrast Adjustment Lever –** Adjust the contrast of the LCD display.

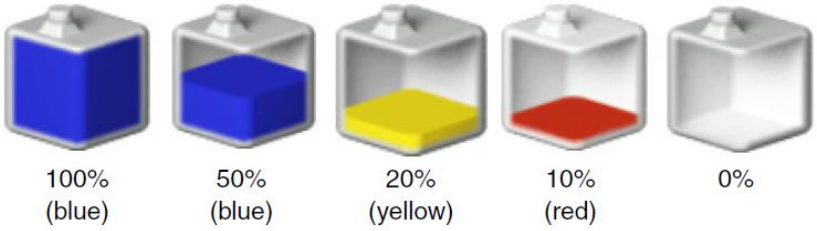
4. **Pneumatic Pressure Adjustment –** This door can be opened to adjust the 0.007 or 0.09 MPa is required.

5. **Supply Tank –** Contains supply of CellPack DST. It stores up to 9L or 12L depending upon version.

User Interface



System Area		
Reagent supply status	[Reagent Ready]	There is prepared reagent in the supply tank.
	[Reagent Not Ready]	Cannot supply reagent to the analyzer(s).
Screen name	Displays the name of the screen that currently appears in the data processing area.	
Instrument status	ST (Green)	Ready
	ST (Flashing green)	Starting up / Maintenance in progress/ Shutting down
	ST (Orange)	Warning
	ST (Red)	Error
Connection to host computer	HC (Green)	Connected
	HC (Red)	Not Connected
Help button	Touch to open the [Error List] screen.	

Data Processing Area	
[Remaining CellPack DST level]	Displays how much CellPack DST remains in 5 levels. 
[Lot No.]	Displays the lot number of the reagent.
[Replace date]	Displays the date when the reagent was last replaced.
[Exp. date]	Displays the expiration date of the reagent. Appears in red when the expiration date has passed.
[Parts information]	Displays messages notifying you when parts used in the instrument must be replaced or calibrated.

Basic Operation Area	
[Select]	This can be touched to configure various instrument settings, perform maintenance and other processes.
[Reagent]	This can be touched to register reagent information, management information and to drain fluid from the instrument.
[PrepStop]	During reagent preparation, [PrepStop] appears. This can be touched to stop preparation. If reagent preparation is stopped, [PrepResm] appears. This can be touched to resume preparation.
[Shutdown]	Touch to execute shutdown procedure.

Quick Guides

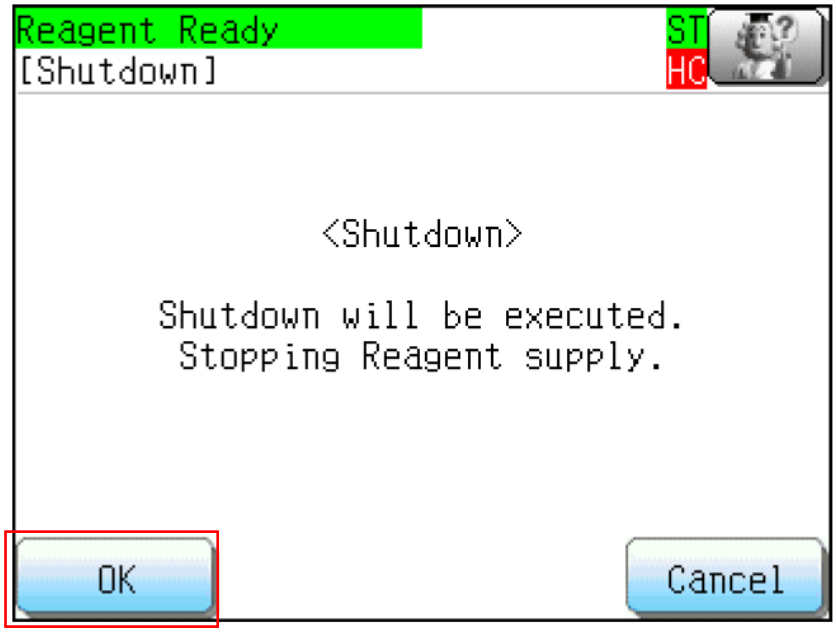
Shut Down & Start Up

Shutdown

A shutdown is not routinely required, is it to be performed when needed. All instruments connected to the RU-20 have to be powered down or supply switched to the DCL keg.

To Perform a Shutdown:

1. In the Basic Operation area of the LCD screen, select [Shutdown] followed by [OK].



2. Power off the instrument using the main switch located on the front of the analyser.

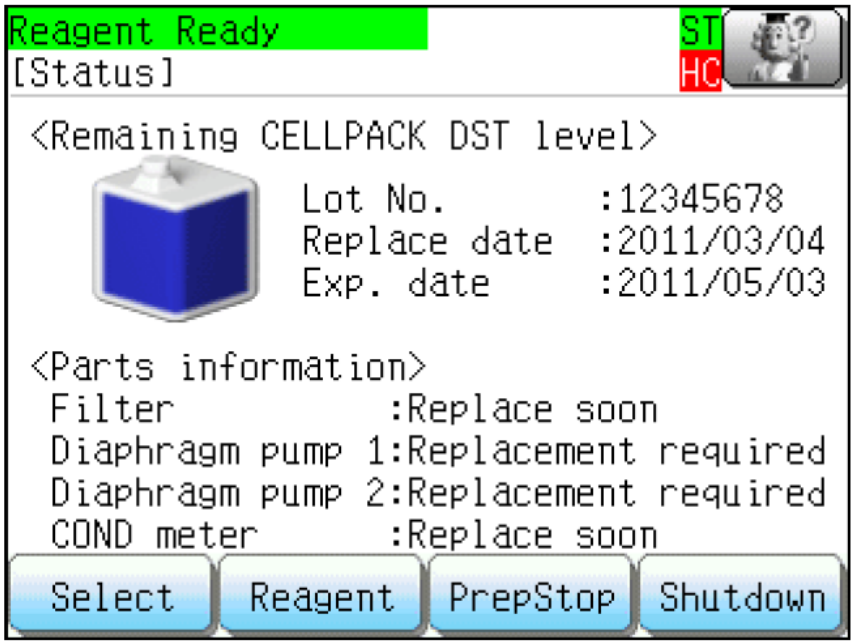
3. The analyser will now power down.

Start-up

To Perform a Start-up:

1. Press the main switch on the front of the analyser.

2. Once powered up the [Status] screen will appear.



3. If powered down, power up analyser(s) connected to the RU-20 or switch supply back from keg to RU-20.

4. Reagent preparation sequence will begin and prepared reagent can be supplied to the connected instruments.

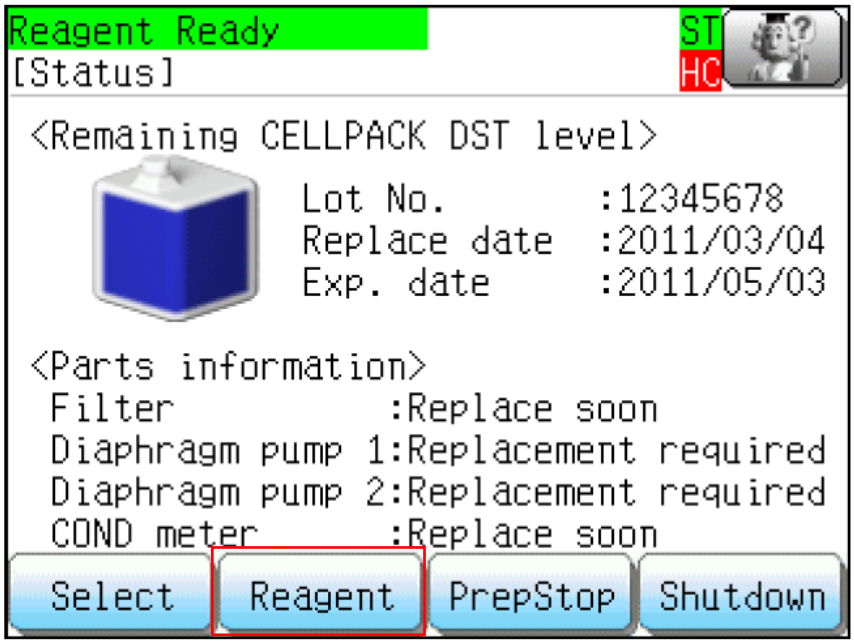
NOTE: If connected analyser(s) are started before the RU-20 is started, notification of the diluted reagent level cannot take place and an error may occur on the analyser(s).

Replacing a Reagent

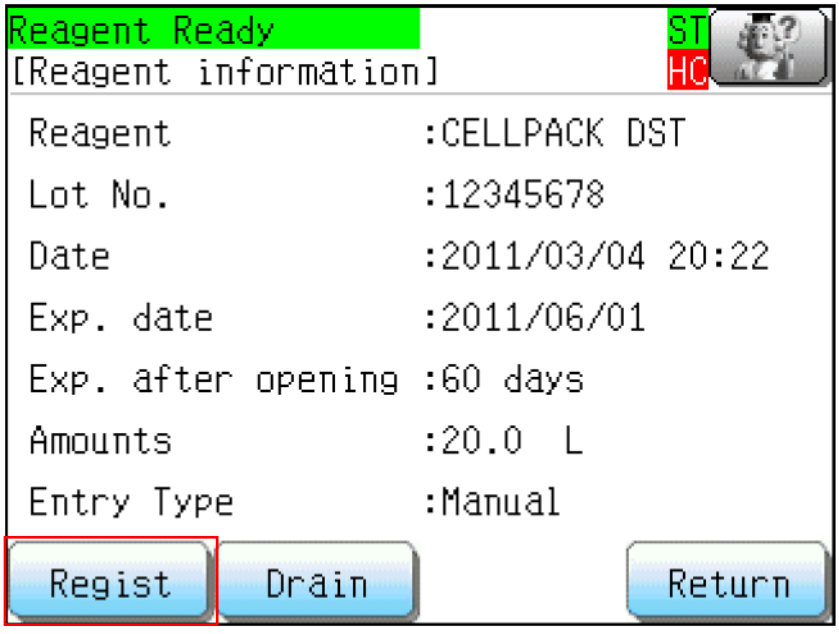
When the reagent has run out or expired it must be replaced.

To Replace a Reagent:

1. From the [Status] screen select [Reagent] to display the [Reagent information] screen.

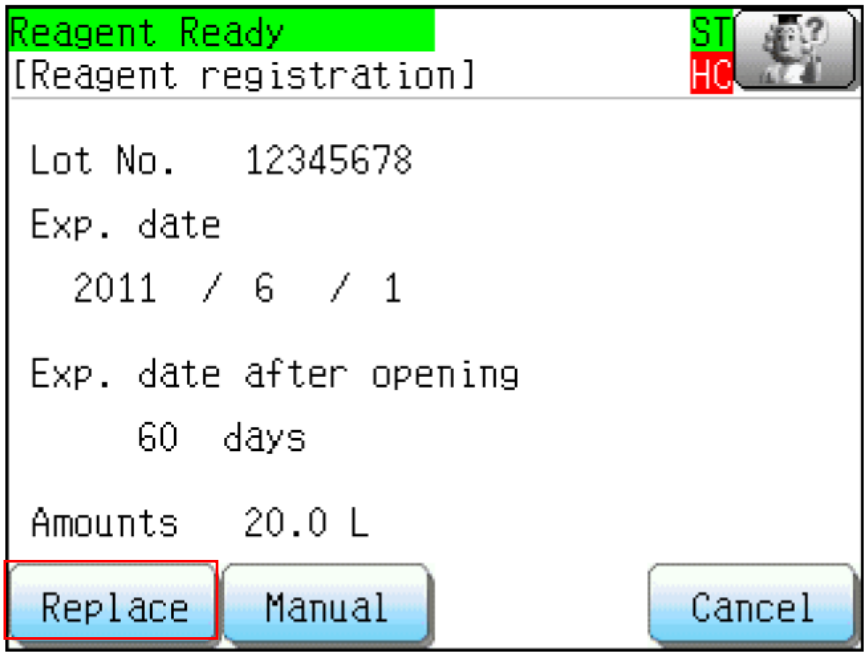


2. Select [Regist] from the [Reagent information] screen.

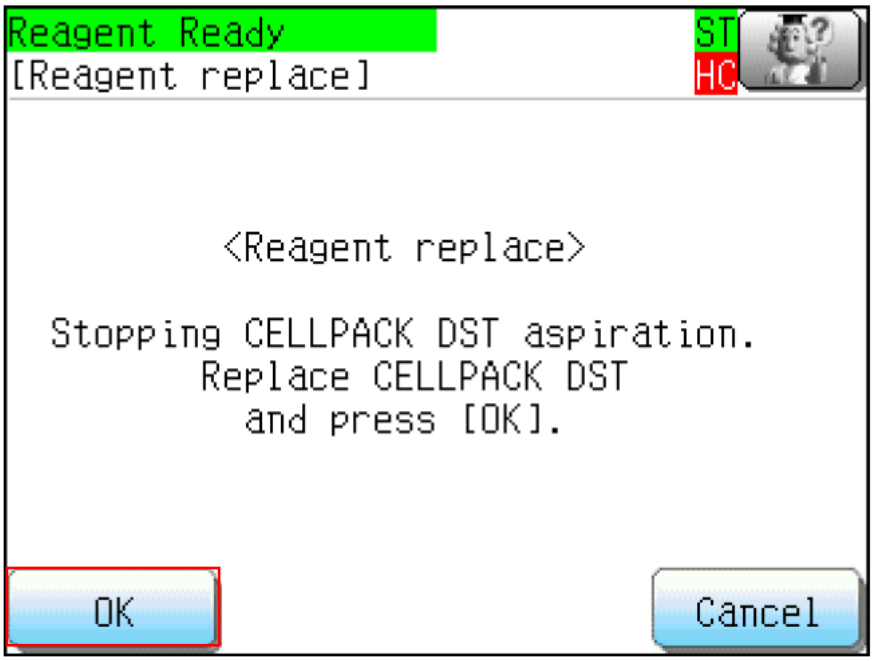


3. Enter the reagent information either by scanning the reagent barcode or by inputting the information manually.

4. Once the correct information has been entered select [Replace].



5. Replace the old reagent container with a new container.



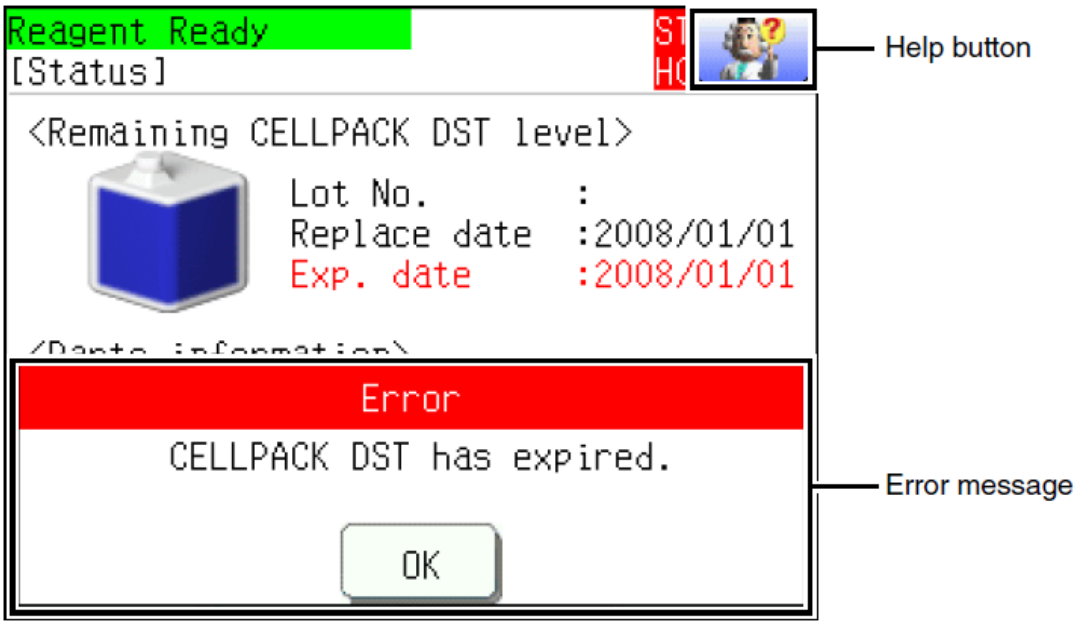
6. Select [OK] to complete.

Troubleshooting Faults

Overview of Instrument Errors

If an error occurs on the instrument an error message will appear on the LCD display accompanied by an audible alarm.

A list of errors can be displayed by selecting the [Help] screen. The errors that appear are listed in order of priority.

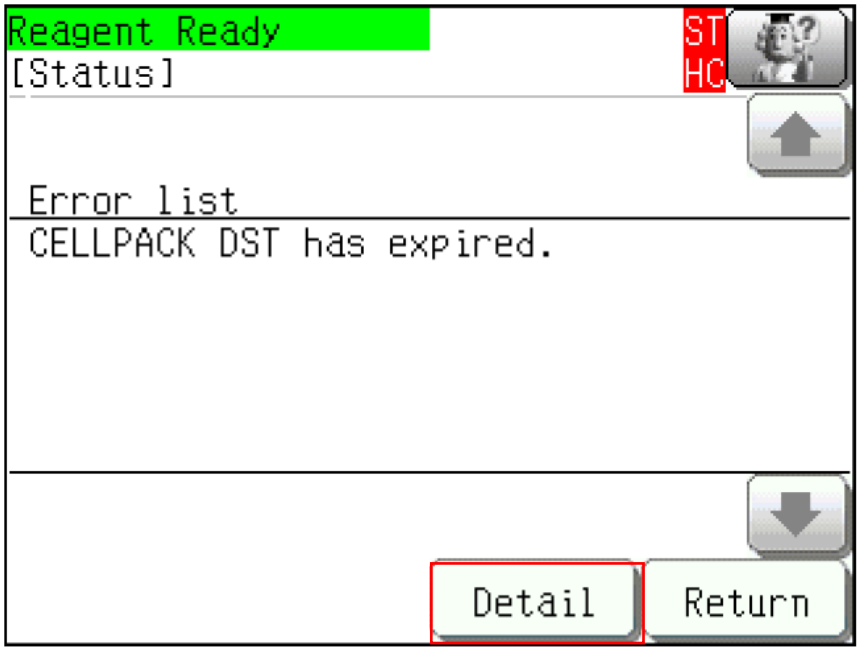


Basic Operation Area	Alarm Sound
Errors that require turning the power off	Continuous sound
Recoverable errors	Intermittent sound
Errors where operation can continue without the need for recovery	Intermittent sound.

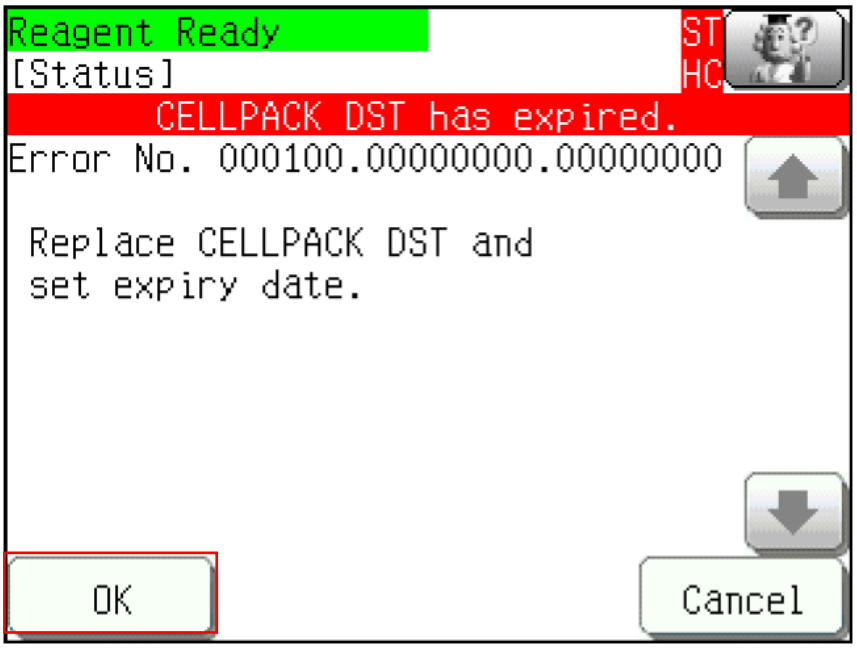
Clearing an Error

If an error occurs follow the steps below to clear the error:

1. Select the [Help] screen to display the error and select [Detail] to view information.



2. Follow the instructions on the screen to clear the error.



3. Select [OK] when complete.

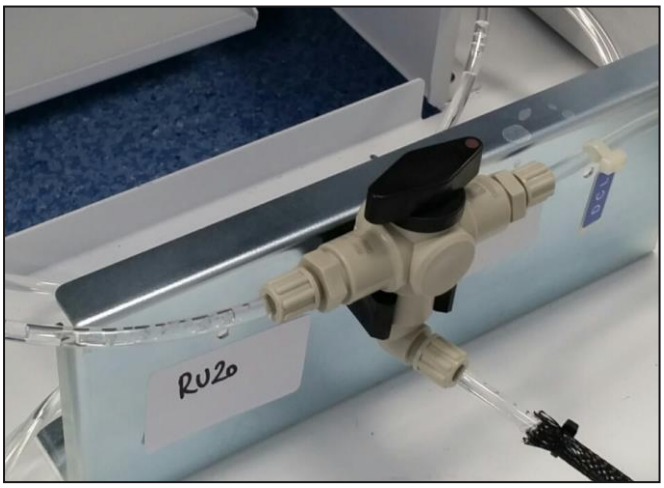
NOTE: For a full list of error messages please refer to the RU-20 IFU.

Switching from RU-20 to Diluent Reagent Keg

At any one time the analyser(s) connected to the RU-20 can have connections to both CellPack DST (via RU-20) and CellPack DCL (via a diluent reagent keg). If the RU-20 becomes unavailable, providing reagent is available, you can switch analyser(s) to run from the diluent reagent keg.

To Switch Between Connections:

1. When the analyser is not in use, turn the three way valve on the analyser (usually located in the CV unit) from the RU-20 to the diluent reagent keg.



2. Register the diluted reagent on the analyser.

To Switch Back to the RU-20:

1. Wait until the CellPack DCL has expired.
2. When required to replace, ensure no work is going through the analyser(s), turn 3-way valve from diluent reagent keg back to the RU-20.
3. Perform a change reagent replacement on the RU-20 when all analysers have been re-connected.
4. Perform a reagent replacement for the CellPack DST on all connected analysers.

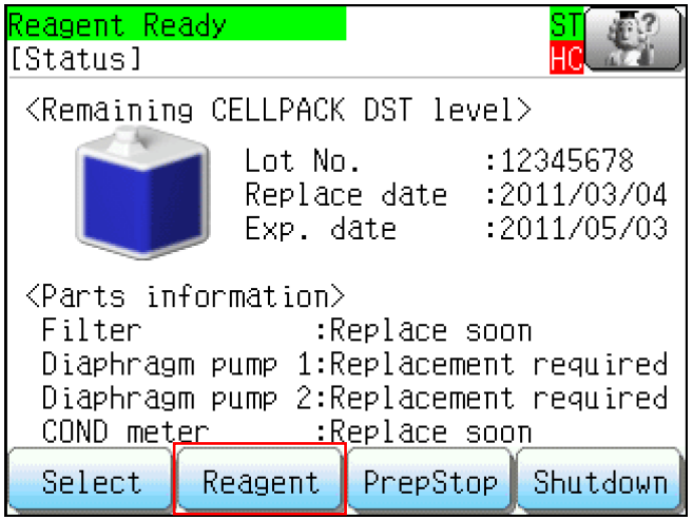
Perform Reagent Drain

In the event that the concentrated reagent in the instrument has expired or otherwise become unusable, the concentrated reagent in the instrument and the prepared reagent in the supply tank must be drained and replenished with new reagent.

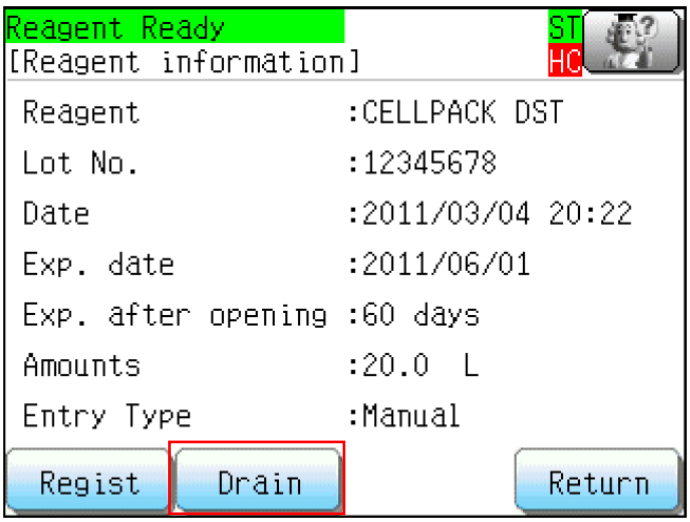
NOTE: The reagent drain process takes approximately 1 hour. During the reagent drain, the RU-20 will no longer be capable of preparing ready-to-use reagent for supply to the attached analysers, therefore, reagent supply should be switched to CellPack DCL prior to reagent drain being commenced.

To Perform a Reagent Drain:

1. From the [Status] screen select [Reagent] to display the [Reagent information] screen.



2. Select [Drain] from the [Reagent information] screen.



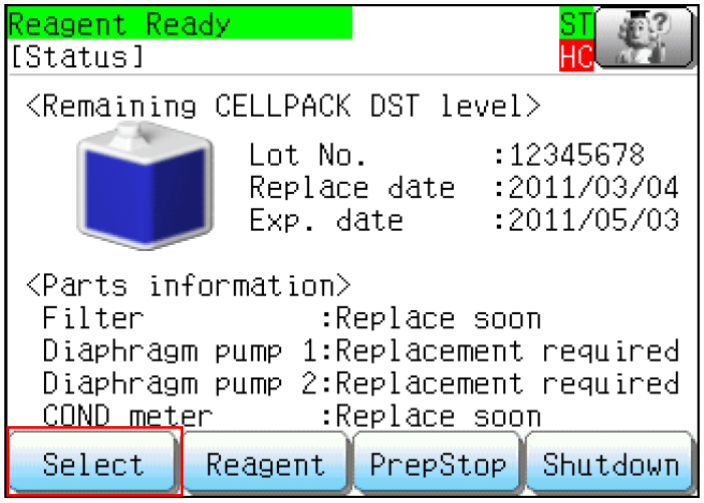
Perform Reagent Replenishment

In the event that the concentrated reagent in the instrument has expired or otherwise become unusable, the concentrated reagent in the instrument and the prepared reagent in the supply tank can be drained and replenished with new reagent.

NOTE: The reagent replenishment process can take a few hours. During the reagent replenishment, the RU-20 will no longer be capable of preparing ready-to-use reagent for supply to the attached analysers, therefore, reagent supply should be switched to CellPack DCL.

To Perform a Reagent Replenishment:

1. From the [Status] screen select [Select].



2. Select [Maint] followed by [Replenish].

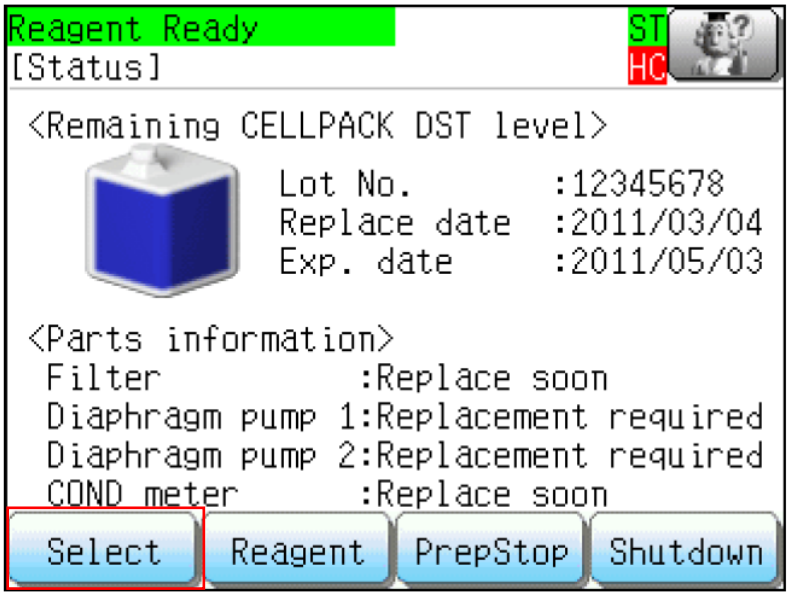
3. The [Replenish reagent] screen will appear, select [OK] to perform.

Perform an Auto Rinse

In the event that a reagent adjustment failure occurs, the partially adjusted reagent can be drained and the interior of the instrument automatically rinsed. When automatic rinsing is performed, the adjusted reagent in the supply tank is not drained.

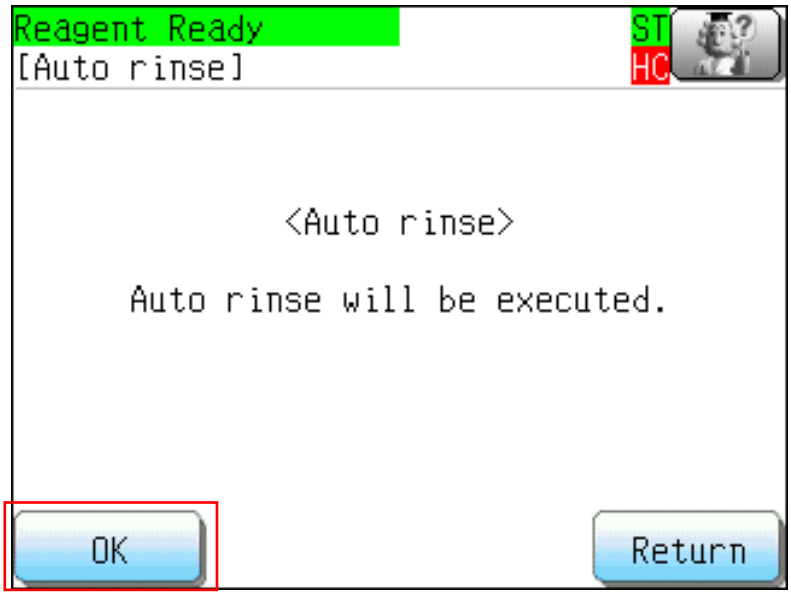
To Perform an Auto Rinse:

1. From the [Status] screen select [Select].



2. Select [Maint] followed by [Auto Rinse].

3. The [Auto Rinse] screen will appear, select [OK] to perform.



RO Water Quality Error

If either of the below error messages appear on the RU-20, it suggests a problem with the quality of the water being supplied by the water purification system.

- Warning: RO water quality
- Error: RO water quality

This would suggest a fault on the attached water purification system and NOT the RU-20.

In this instance, if the water purification system has been supplied by Sysmex, please contact the Customer Support Centre. If the system has been supplied by an external company, please contact the supplier directly.

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