

Bika LIMS

Inventory Management

Functional Specification and Use Cases

V 1.1 30 June 2021

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1. Overview

This document summarises the use cases for an inventory management and reporting system for a commercial QC laboratory.

In this specific instance, the lab receives all the information regarding the analysis from the client, including methods, reporting specifications and specific consumables such as reference standards and HPLC columns etc.

This information is specific to each client and often varies between different samples from the same Client.

1.1. Generic scope

Clients as suppliers and consumable time use are unconventional use of inventory management - the LIMS must facilitate more generic consumable use, e.g. reagents, too.

2. Objectives

This document summarizes the specific use cases for:

1. Reference Material Consumption
2. HPLC column Time Usage

It remains flexible to do general consumable (reagent) consumption.

The document elaborates the use cases towards an unambiguous functional specification good enough for programmers to work from.

It serves as a specification for technical analysis and as a quality management tool for acceptance testing by users thereafter. It governs accurate budgeting for the work required.



3. Managing Reference Materials

3.1. Reference Materials

A Primary Reference Standard, PRM, is an ultra high purity grade compound used in assays, identification or purity testing.

It can be a single compound or a mixture having the analyte of interest in a specified and certified amount. They are usually produced and certified by metrological institutes like NIST, NMIJ, METAS, or Pharmacopoeias like USP.

The PRM certified values are used as ground truth to create Secondary Reference Material, SRMs, in the lab, standardised against a PRM.

In this use case, the Lab receives these materials from its Clients, who require keeping a close inventory of its use and to let them know when running low and they have time to restock.

3.2. Reference Definitions

Reference Definitions are 'templates' in the LIMS that hold predefined values for specific Analysis Services. When a new Reference Sample is created, a Definition is used for assigning its expected reference values.

They are very useful for composite Reference Samples with many analytes having the same value from batch to batch.

It is not the case for all Reference Samples, e.g. a PRM batch of a single compound with a percentage purity value, that is expected to change from batch to batch.

For Reference Samples to be correctly looked up for Worksheets, they must have parent Reference Definitions.

3.3. Monitoring Consumption

Position	Analysis	Method	Instrument	Result
1 QC19-001 Reference Samples cc Start weight <input type="text" value="78.88g"/> End weight <input type="text" value="78.12g"/> Consumption 0.76g	Aluminium	HPLC UV	Shimadzu HPLC	.9 mg/L
	Calcium	HPLC UV	Shimadzu HPLC	.2 mg/kg
	Iron	HPLC UV	Shimadzu HPLC	.3 µg/L
	Magnesium	HPLC UV	Shimadzu HPLC	Resu µg/L
	Manganese	HPLC UV	Shimadzu HPLC	Resu µg/L
	Sodium	HPLC UV	Shimadzu HPLC	Resu mg/L

Because one amount of a Reference Sample sometimes can be used for multiple Analyses on the same Sample, the Consumption is logged per Sample, not Analysis.

On Worksheets where Reference results are captured, the inventory fields are provided per Sample, not per Analysis.

3.4. Use Cases

Reference Samples can be managed in volume or weight, and in the case of cartridges or other uses once only Reference Materials, the number of units in stock. In this use case we use weight only.

All Bika conventions apply to the LIMS objects in the use case, including:

- All lists can be reordered per column and are searchable
- All displayed object IDs and Titles are hyperlinked to the corresponding pages

A typical Reference Material life cycle follows these steps:

3.4.1. Receiving Reference Materials

When a new RM container is received at the Lab, its initial weight (or volume) is measured and captured.

1. The Reference Sample arrives from either Supplier or Client
2. An user authorised for creating Reference Samples in the LIMS, inspects the shipment to see whether its specification corresponds with any of the Reference Definitions already defined in the database
3. If a Reference Definition is available, he/she can [create a new Reference Sample using the Definition](#)* straight away. Please go to #8
4. If it is a new Reference Sample for which a Reference Definition is not available, it has to be created first - the user navigates to Reference Definitions in the LIMS setup
5. The user creates a new Reference Definition and gives it a meaningful name and description
6. The user captures the certified reference values and uncertainty as minimum and maximum for their corresponding Analysis Services
7. The user saves the Reference Definition
8. * To create a Reference Sample for the new RM, the user navigates to the pages of the provider from whom it was received, Supplier or Client, and open its Reference Samples page

9. The user creates a new Reference Sample using its corresponding Reference Definition as template or the Certified Value specific to this sample
10. The user then captures the information specific to the Reference Sample
 - Date received
 - Expiry Date
 - Manufacturer
 - Manufacturer Catalogue #
 - Manufacturer Lot #
 - Manufacturer Product ID, scanned from barcode
11. If the Reference Sample goes into use immediately, its Date Opened field is completed too, else when it eventually does
12. The user saves the Reference Sample
13. The user prints the Sample's local barcode and sticks it on the Sample
14. The user then Stores the Reference Sample by navigating to an appropriate empty storage position and scanning the Sample in

3.4.2. Using Reference Samples

1. Analysts add Reference Analyses on Reference Samples to Worksheets of routine Analyses
2. While in use, the sample can be checked out from Storage, and stored again after use
3. Apart from Analysis fields, Start and End weight fields are available for the Reference Sample in its Worksheet position:

Position	Analysis	Method	Instrument	Result
1 QC19-001 Reference Samples cc Start weight <input type="text" value="78.88g"/> End weight <input type="text" value="78.12g"/> Consumption 0.76g	Aluminium Calcium Iron Magnesium	<input type="text" value="HPLC UV"/> <input type="text" value="HPLC UV"/> <input type="text" value="HPLC UV"/> <input type="text" value="HPLC UV"/>	<input type="text" value="Shimadzu HPLC"/> <input type="text" value="Shimadzu HPLC"/> <input type="text" value="Shimadzu HPLC"/> <input type="text" value="Shimadzu HPLC"/>	<input type="text" value=".9"/> mg/L <input type="text" value=".2"/> mg/kg <input type="text" value=".3"/> µg/L <input type="text" value="Resu"/> µg/L

4. **NB.** The unit used for these measurements, either weight or volume, is read off the Reference Sample's record, *g* in this example, but can also be *mL*, etc.

5. Before the user starts with the Reference Analysis, he/she weighs the Reference Sample and captures its Start weight
6. If the Start weight does not correspond to the level on record for the Reference Sample within a configurable percentage error, an alert icon is displayed next to the weight

‘Configurable Percentage’ refers to a numeric % value that can be set up in the LIMS configuration, e.g. 5 %
7. On a mouse over of the icon it displays “Weight does not correspond to weight on record, nn.nn g”
8. A [Corrective action procedure is completed by a lab manager](#)**
9. After the analysis, the user weighs in the End weight and presses Save
10. The LIMS captures it to the Sample’s level on record, overwriting the previous value
11. A consumption log is kept, see below
12. If the amount used differs from average historic use by more than a configurable percentage, an alert icon is displayed next to the final weight which on mouse-over reads, “Consumption differs n% from historic use”
13. [<Corrective action by labmanager goes here>](#)
14. Only when these weights have both been captured and Saved, can the Reference Sample’s Analysis result be *Verified*
15. Once one Analysis for the Reference Sample has been *Verified*, the weight fields cannot be edited anymore
16. The weight fieldsThe reference Analyses proceeds further along its normal workflow

3.4.3. Recording Reference Sample Use

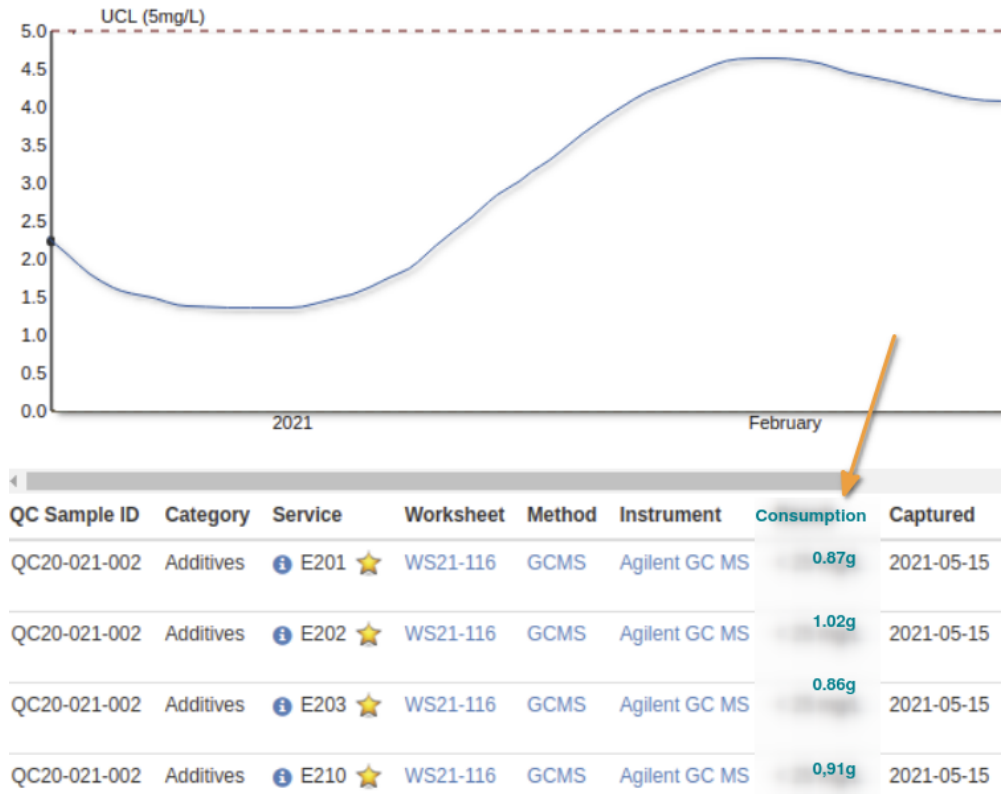
Because of the need to raise alerts when consumption differs from average use, consumption is recorded in a table with columns

- Reference Sample ID
- Worksheet ID
- Start weight
- End Weight
- Consumption

NB. The same References Sample can be used more than once on a Worksheet

Story:

1. When the user saves the End weight, the LIMS creates a new record in this table
2. The table is listed and graphed on the Reference Sample's Consumption tab, in the same way its results are displayed on its Analyses tab:



3. The Worksheet ID is hyper linked to the Worksheet where the Sample was used for users to look-up more information on the consumption
4. The same out of range alerts used on worksheets on Start Weights and Consumption are displayed in the table next to those numbers where they meet conditions
5. Since only one can be assigned per use and Worksheet, Methods and Instruments, are displayed in the rows per ReferenSample Use too
6. The graph includes a line for average use, and plus and minus the error percentage allowed

3.4.4. Low Stock Level Alert

Each Reference Sample is set up with a minimum Re-ordering level, weight, at which a replenish alert is raised for lab clerks and lab managers.

Because the Reference Sample's stock will continue to diminish until all if it was used and it is replaced by a new Reference Sample, the alert is only raised the first time the re-order level is breached (else it'll continue to trigger alerts).

1. When the user weighs in the End Weight, the LIMS compares it with the Sample's low stock level alert
2. If it is the first time the level drops below the Re-ordering Level, an alert is raised
3. This trigger happens when the Start Weight is higher than the Re-ordering Level, and the End Weight lower
4. A warning banner in standard Bika convention is displayed, and an email sent to the responsible lab users
5. The email and banner includes the Reference Sample's ID, Title and Description and its current level
6. If an alert was sent earlier, i.e. both Start and End weights are below the re-ordering level, no alert is sent
7. The users follow up on the alerts by obtaining more of the RM

3.4.5. Near Expiry Alert

To ensure stock is replenished in time, the system raises an alert when a Reference Sample nears its expiry date.

How long before the expiry date is firstly set globally in the LIMS setup, but can be differentiated on the Reference Sample itself.

When the system date passes the warning date, the system displays an alert icon next to the Sample in lists, and in a banner on the Sample itself.

It sends an email once to the lab managers in the system.

3.4.6. Expiry and Disposal

1. Once the system date is after the expiry date for a Reference Sample, its state changes to *Expired*
2. *Expired* Reference Samples are no longer offered for inclusion on Worksheets
3. When a Sample is empty, say its level drops below a configurable %, say 0.1 %, Users can *Dispose* them
4. From time to time, users scan the list of expired Samples and physically *Dispose* of them them by approved method, and advance the Reference Sample's state to *Disposed* in the LIMS

5. It is cleared from its storage position too

3.5. Management Reports

3.5.1. Reference Sample Consumption

Parameters: Reference Sample ID or Title
Start date to End date
Interval (Daily/Weekly/Monthly)

Columns for: Sample ID
Title
Date
Weight

Total for: Weight

3.5.2. Near-expiry Reference Samples

Parameters: Start date to End date
Interval (Daily/Weekly/Monthly)
Weight

Columns for: Sample ID
Title
Date expired
Weight

Total for: Weight

3.5.3. Reference Samples to be reordered

No Parameters, lists all expired and Reference Sample below their reordering levels, and not *Disposed*.

3.5.4. Stock levels

No Parameters, lists all Consumables not *Disposed* and their current levels.

3.6. Attributes

REFERENCE SAMPLE

- ID - issued by the LIMS
- Title
- Description
- Supplier or Client when supplied by the Client
- Manufacturer
- Manufacturer Catalogue #
- Manufacturer Lot #
- Manufacturer barcoded Product ID
- Hazardous Y/N
- Date Received
- Date Opened
- Expiry Date
- Expiry warning period
- Expiry note posted Y/N
- Date Disposed
- Unit (Weight/Volume)
- Quantity when full
- Level
- Re-ordering level
- Storage location

Optional

- CAS Number
- Hazard Rating
- Storage Conditions
- MSDS. Material Safety Data Sheets
- Spill-Handling Procedures
- First Aid SOP
- Disposal SOP

CERTIFIED VALUES

- Reference Sample ID
- Analysis Service
- Certified Value
- Minimum
- Maximum

USAGE

- Reference Sample ID
- Worksheet ID
- Start weight
- End weight
- Consumption

3.7. Bika Gap

Bika's current Reference Sample architecture allows for more than one Reference value per Reference Sample, and fits the requirement closely. [Quality Control](#) in the user manual.

It lacks:

3.7.1. High Consumption and Low Level Alerts

As described in [Logging Reference Sample Use](#) earlier, an extra table and tab on Reference Samples for its display is required, and in [Low Stock Level Alert](#), alerts when a Sample's weight reaches that threshold.

3.7.2. Clients as Suppliers

Since Clients may supply Reference Samples and Consumables too, the Reference Sample and Consumable architecture used for Suppliers is duplicated for Clients.

This is not a widely used feature, and since it makes up much clutter on Client pages, is only enabled via a setting in the LIMS configuration, 'Enable Clients as Suppliers Y/N'.

3.7.3. Storage

The same functionality that currently applies to routine Sample Storage can be applied to Reference Samples, utilising shared Storage Facilities configured centrally.

Store and Retrieve functions are available on Reference Sample

- Views
- Lists

The lists can be filtered for Stored Reference Samples from a button, as per conventional at the top of the lists.

3.7.4. Near-expiry Alerts

A new feature, see [use case above](#)

3.7.5. Disposal

Bika's *Disposed* state and *Dispose* action have to be re-activated. Buttons and Filters exist in the UI, but the code became dormant

3.7.6. Authorisation

Currently only users authorised as labmanagers have access to Suppliers, Reference Definitions and Reference Samples. Lab clerks will need access too

It could be a good idea to create a new group, Inventory Managers, with these authorisations and assign Lab clerks and Analysts to it as applicable.

3.7.7. Expanding Reference Definitions

Not critical, but adding a few more fields to Reference Definitions can be added:

- Unit (Weight/Volume)
- Level
- Re-ordering level

When Reference Samples are created from Definitions, they inherit these too, the Level being the very start level for the Reference Sample when it is opened the first time.

3.7.8. Reports

All the Inventory [management reports for Reference Sample consumption](#) are new.

3.8. Phase II

3.8.1. Recertification of SRMs

Recertification of a reference material's value is exclusively for the case of SRMs or working standards.

Sometimes, the lifespan of a SRM can be extended by running the quality control analysis with the same methods that it's used for.

If necessary, the material can be repurified and its value recertified against a PRM. In this case a new RM should be created in the system.

3.8.2. Corrective action. Invalid start weight

This procedure reconciles the weight levels for a Reference Sample on record, through manual input.

It means this procedure can also be used for periodic stock reconciliations if so required

Use Case

1. An out-of range start weight is saved and the LIMS displays an alert icon next to the weight as described earlier
2. The End weight cannot be captured now and that field becomes uneditable
3. A lab manager has to do manually correct the weight on record, logs in, and navigates to the Reference Sample in the LIMS Setup
4. The user opens the Consumption tab and clicks a button for manual reconciliations
5. A form opens that allows the user to capture a consumption, weight and reason for the adjustment
6. That brings the weight level on record in range of the newly captured Start weight, and the Analyst saves it again

3.8.3. Corrective action. High consumption

3.8.4. Re-ordering

3.8.5. Manual Stock reconciliation

3.8.6. Dashboard visualising stock levels and alerts

4. Managing Consumables

4.1. Generic scope

For this use case we only examine using HPLC columns. The specification however should achieve general consumable consumption monitoring in the lab, of Reagents etc.

As for Reference Material, Consumables can in this case also be obtained from Clients, who would for instance provide special HPLC columns for a specific analysis.

Monitoring the column time usage is required. In other cases the weight or volume used per analysis, or tracking the number of single-use instrument cartridges in stock.

For this purpose, consumables are classified per type

4.2. Use Cases

The use cases for Consumables are very much a duplicate of those for Reference Samples.

HPLC Columns are used as Consumable here

4.2.1. Receiving Consumables

The user navigates to Consumables and creates a new Consumable record, populates it with the HPLC column information and saves.

4.2.2. Using Consumables

The Column and its consumption are captured per Sample on Worksheets. It is not possible to capture them on the Sample view itself, difficult to do in that form where the same Consumable is used to determine more than one Analysis result.

All Consumables not expired are offered on a lookup in the Worksheet. This can be improved with the introduction of [Consumable Definitions](#).

Most times the same Consumable is used for all the Samples on a Worksheet, and there is an option to capture it only once at the top of the Worksheet and apply it to all Samples.

The user captures the Column Title or ID and its Start and End Times before *Verifying* the Analyses. The LIMS logs the consumption for the Column.

Similar alerts for Start level and Consumption are issued to those for Reference Samples.

NB. To keep Worksheet layout and data capturing manageable. only one consumable per Sample is allowed. Separate Worksheets per Method should ensure this naturally already.

4.2.3. Logging Consumable consumption

Same as for Reference Samples and displayed on the Column's Consumption tab, with alert icons where applicable and a chart.

Because the same consumable can be used multiple times on a worksheet, the log records consumption per Sample and is tabled as such.

4.2.4. Consumables and Reference Samples

Reference Sample analyses consume Reagents too, and consumable consumption for them are logged next to their own consumption:

Position	Analysis	Method	Instrument
1 QC19-001 Reference Samples cc Start weight ... End weight ... Consumption ... Column title ... Start time ... End time ... Consumption ...	Arsenic	HPLC UV ▾	Shimadzu HPLC ▾
	Cadmium	HPLC UV ▾	Shimadzu HPLC ▾
	Lead	HPLC UV ▾	Shimadzu HPLC ▾
	Mercury	HPLC UV ▾	Shimadzu HPLC ▾
	Zinc	HPLC UV ▾	Shimadzu HPLC ▾
2 QC19-014 Bika Lab Systems Start weight ... End weight ... Consumption ... Column title ... Start time ... End time ... Consumption ...	Arsenic	HPLC UV ▾	Shimadzu HPLC ▾
	Cadmium	HPLC UV ▾	Shimadzu HPLC ▾
	Lead	HPLC UV ▾	Shimadzu HPLC ▾
	Mercury	HPLC UV ▾	Shimadzu HPLC ▾
	Zinc	HPLC UV ▾	Shimadzu HPLC ▾
3 DWT20-0006 Happy Hills Drinking Water Column title ... Start time ... End time ... Consumption ...	Arsenic	HPLC UV ▾	Shimadzu HPLC ▾
	Cadmium	HPLC UV ▾	Shimadzu HPLC ▾
	Lead	HPLC UV ▾	Shimadzu HPLC ▾
	Mercury	HPLC UV ▾	Shimadzu HPLC ▾
	Zinc	HPLC UV ▾	Shimadzu HPLC ▾
4 DWT20-0007 Happy Hills Drinking Water Column title ... Start time ... End time ... Consumption ...	Arsenic	HPLC UV ▾	Shimadzu HPLC ▾
	Cadmium	HPLC UV ▾	Shimadzu HPLC ▾
	Lead	HPLC UV ▾	Shimadzu HPLC ▾
	Mercury	HPLC UV ▾	Shimadzu HPLC ▾
	Zinc	HPLC UV ▾	Shimadzu HPLC ▾

4.2.5. Looking up Analyses' Consumables

It will always be clear on Worksheets which consumable was used for the Samples and Analyses it contains.

Analysis Consumable lookups for queries will more likely be done on Sample views.

An extra column for Consumable is displayed and completed with the Consumable used per Analysis row. It is noneditable at all times

Lab Analyses **Sample view**

Valid Invalid All

<input type="checkbox"/>	Analysis	Method	Instrument	Analyst	Consumable	Result
<input type="checkbox"/>	E201	GCMS	Agilent GC MS	admin		864.000 mg/L
<input type="checkbox"/>	E202	GCMS	Agilent GC MS	admin		345.000 mg/L
<input type="checkbox"/>	E203	GCMS	Agilent GC MS	admin		654.000 mg/L
<input type="checkbox"/>	E210	GCMS	Agilent GC MS	admin		643.000 mg/L
<input type="checkbox"/>	E211	GCMS	Agilent GC MS	admin		> 1500 mg/L
<input type="checkbox"/>	E212	GCMS	Agilent GC MS	admin		34.000 mg/L
<input type="checkbox"/>	E220	GCMS	Agilent GC MS	admin		46.000 mg/L

4.2.6. Low Stock Level Alert

Same as for Reference Samples, when the re-ordering level is breached, the LIMS issues online and emailed alerts.

4.2.7. Consumable Suppliers

Suppliers (and Clients) get a tab for Consumables.

4.2.8. Near Expiry Alert

To ensure stock is replenished in time, the system raises an alert when a Consumable nears its expiry date.

How long before the expiry date is firstly set globally in the LIMS setup, but can be differentiated on the Consumable itself.

When the system date passes the warning date, the system displays an alert icon next to the Sample in lists, and in a banner on the Consumable.

It sends an email once to the lab managers in the system.

4.2.9. Expiry and Disposal

Same as for Reference Samples, columns past their use by dates, transition to *Expired* and may be *Disposed*.

They may also be *Disposed* directly, before expiry, when empty or id found to be faulty.

4.3. Management Reports

4.3.1. Consumable Consumption

Parameters: Consumable ID or Title
Start date to End date
Interval (Daily/Weekly/Monthly)

Columns for: Sample ID
Title
Date
Weight

Total for: Weight

4.3.2. Near-expiry Consumables

Parameters: Start date to End date
Interval (Daily/Weekly/Monthly)
Weight

Columns for: Consumable ID
Title
Date expired
Weight

Total for: Weight

4.3.3. Stock levels

No Parameters, lists all Consumables not *Disposed* and their current levels.

4.3.4. Consumables to be reordered

No Parameters, lists all expired and Consumables below their reordering levels, and not *Disposed*.

4.4. Gap. Consumables In Bika

Everything is new and to be built from ground level, but in many cases coded for Reference Samples can be re-applied.

This object /class can potentially be copied from Reference Samples and its Certified results table and results logging functionality and chart removed.

There is also no need for the equivalent of Reference Definitions for Consumables, they are all created once-off and uniquely.

A top level approach could be:

- Clone Reference Samples to Consumables

- No need for Reference Definitions

- Remove Reference Sample Analyses

- Sanity test

4.4.1. Consumable on both Sample and Analyses in the DB

A Sample can have many Consumables associated with it, different per Analysis it contains. The information is captured in Worksheet context.

It is required that Consumables can be looked up for Analyses, and it would happen via the Sample it is on - the Consumable used has to be displayed per Analysis on Sample views too.

If the Consumable has to be looked up via Worksheets every time a Sample is viewed, performance will be impacted.

A better solution could be to add a Consumable ID to Analyses and update it from the Worksheet every time it is modified there.

An Analysis' Consumable can never be updated on Sample views

4.4.2. Reference Samples and Consumables

Reference Analyses, on Reference Samples, get the Reagent ID too

4.5. Phase II

4.5.1. Consumable Definitions

In Labs with many Consumables in use, the lookup on Worksheets could become unmanageable.

An option would be to define which Analyses a Consumable is used for and only list those, much like only applicable Reference Samples are offered on lookups

This will have to be done repeatedly , everytime a new lot of the Reagent is taken into use.

A function exactly like Reference Definitions and their children Reference Samples are needed, 'Consumable Definitions' and 'Consumables'

4.6. Attributes

CONSUMABLES TYPES

- Title
- Description

CONSUMABLES

- ID - issued by the LIMS
- Title
- Consumable type
- Description
- Supplier or Client when supplied by the Client
- Manufacturer
- Manufacturer Catalogue #
- Manufacturer Lot / Serial #
- Manufacturer barcoded Product ID
- Hazardous Y/N
- Date Received
- Date Opened
- Expiry date
- Expiry warning period
- Expiry notice posted Y/N
- Date Disposed
- Unit (Time/Weight/Volume)
- Quantity when full
- Level
- Re-ordering level
- Storage location

Optional

- CAS Number
- Hazard Rating
- Storage Conditions
- MSDS. Material Safety Data Sheets
- Spill-Handling Procedures
- First Aid SOP
- Disposal SOP



USAGE

- Consumable ID
- Worksheet ID
- Sample ID
- Start weight
- End weight
- Consumption

5. Storage

5.1. Storage In Bika

Storage functionality in Bika consists of

- Configuring Storage facilities
- Storing Samples
- Retrieving Samples

Reference Materials and Consumables can share the same Storage facilities, and the Sample Store/Retrieve function duplicated for them.

Storage facilities are set up hierarchically, typically a Room, with a number of Fridges or Cabinets, each Boxes or Trays/Shelves with Positions in them.

All Facilities and children containers are barcoded for easy scanning of storage locations

Samples can be stored or retrieved on

- Sample lists
- Sample views

Both actions are logged and listed in the Sample's audit trail. Stored Samples get an additional status, *Stored*, and can be listed separately.

The contents of the sample containers are displayed graphically and filled positions hyperlinked to their corresponding Samples.

SS-00003

Available positions: 8/96

Sample Position **A5**

	1	2	3	4	5	6	7	8	9	10	11	12
A	TPP19-0002 Tomato Pulp A1 1	TPP19-0005 Tomato Pulp A2 2	TPP19-0004 Tomato Pulp A3 3	TPP19-0008 Tomato Pulp A4 4								
B	TPP19-0006 Tomato Pulp B1 13	TPP19-0009 Tomato Pulp B2 14	TPP19-0010 Tomato Pulp B3 15	TPP19-0012 Tomato Pulp B4 16								
C												
D												
E												
F												
G												
H												

6. Document History

It is not uncommon that functional improvements to the specification are identified during testing and acceptance, which require the document to be adjusted, and by implication, the Budget, Delivery and Payment Schedules.

- 0.1 4 May Gonzalo First draft
- 0.2 5 May Lemoene Updated with current Bika functionality
- 0.3 8 May lemoene More details
- 0.5 17 May Lemoene Final draft
- 1.0 15 Jun Lemoene Final
- 1.1 30 Jun Lemoene Reconciliation reports added