

# CAT<sup>2</sup>'s Food Safety and Quality Management System (FSQM)



CAT<sup>2</sup> : Software for the Food Industry

# **Table of Contents**

Company Overview
CAT <sup>2</sup> Food Safety & Quality Management System Overview
Features at a Glance
Technical Information
Prevention or Cure
Alerts or Wonder What Happened5
Efficiency or Guesswork
Real-time Information or Paper Trail5
Configuring Checks
Collecting Data7
Unmanned Devices7
Operator Equipment
FSQM Touch Screen
FSQM Touch Screen    8      Equation Checks    12      Viewing Results in FSQM    12      Reports    13      Data Analysis and Visualization    14
FSQM Touch Screen8Equation Checks12Viewing Results in FSQM12Reports13Data Analysis and Visualization14Document Control15
FSQM Touch Screen8Equation Checks12Viewing Results in FSQM12Reports13Data Analysis and Visualization14Document Control15Training Register and Take Test Application16
FSQM Touch Screen8Equation Checks12Viewing Results in FSQM12Reports13Data Analysis and Visualization14Document Control15Training Register and Take Test Application16Product Options, Features & Differentiators17
FSQM Touch Screen8Equation Checks12Viewing Results in FSQM12Reports13Data Analysis and Visualization14Document Control15Training Register and Take Test Application16Product Options, Features & Differentiators17Integrated Product Hold & Release System17
FSQM Touch Screen8Equation Checks12Viewing Results in FSQM12Reports13Data Analysis and Visualization14Document Control15Training Register and Take Test Application16Product Options, Features & Differentiators17Integrated Product Hold & Release System17Site Synchronization18
FSQM Touch Screen8Equation Checks12Viewing Results in FSQM12Reports13Data Analysis and Visualization14Document Control15Training Register and Take Test Application16Product Options, Features & Differentiators17Integrated Product Hold & Release System17Site Synchronization18Laboratory Information Management System (LIMS)18

# **Company Overview**

CAT<sup>2</sup> specializes in innovative software solutions for the food industry including real-time data collection from the plant floor, real-time reporting for production and inventory, and farm-to-fork traceability. We provide customizable solutions that improve our clients' efficiency by increasing their productivity and decreasing their loss, measurably reducing costs. Our customers span 6 continents and include 60 percent of the top 50 meat and poultry companies in North America, 3 out of the top 5 American egg producers, and 1 of Europe's leading food processors.

# CAT<sup>2</sup> Food Safety & Quality Management System Overview

Our Food Safety and Quality Management System (FSQM) focuses on proactively monitoring processes and preventing failures. Using FSQM, you can guarantee that products meet your company's and your customers' standards for safety and quality. You may configure checks per your company's HACCP, SQF, BRC, USDA, FDA, QA, QC, and SSOP/GMP specifications.

Associates can collect weight, size, temperature, grading, and defect data on the plant floor as well as perform yield, retention, and AQL checks. Touchscreen, hand-held, or tablet computers capture this data, eliminating manual data entry and reducing paperwork.

Unmanned devices, such as wireless sensors, record temperatures or transmit pH, flow, pressure, and humidity levels. Production data for formers and other processing equipment may also be monitored and recorded in the system.

Production downtime can be captured in two ways: Operators may use FSQM's touch-screen application to manually record downtime duration and causes, or sensors may be installed in the equipment to automatically record downtime when there is a gap in productivity.



When values enter an alarm state, a page, text message, email, or scoreboard alert can be used to notify plant personnel, allowing them to proactively respond to the process, reducing failures and downtime and improving efficiency.

This advanced data collection and analysis system provides you with consistent, reliable, and provable data in an easy-to-use format. All data can be viewed in real time, including a failure ranking report, pre-shipment review, and compliance reports. Data can also be shown on charts and graphs enabled with SPC analysis and Six Sigma capabilities. You may use the data to analyze loss and giveaway, track root causes of problems, and prove traceability from receipt to consumer. FSQM turns plant floor data into actionable, process-improving intelligence.

To help BRC- and SQF-certified companies facilitate training programs and track employee qualifications, we have added a training register and document control module to FSQM. Our clients can now manage training, training materials, attendance, tests, and test results from within FSQM. The document module supports websites, PDFs, graphics, audio, and video files, which may also be tied to checks, making them accessible to operators on the plant floor.

# Features at a Glance

- Measure processes in real time
- Apply automated SPC functions, where needed
- Ensure checks are done in place and on time
- Track deviations, reasons, and preventive actions
- Analyze history for recurring issues and trends
- Increase efficiencies
- Eliminate paper from the floor for checks and specifications
- Create a single repository for food safety, production, training, and quality information
- Use sample-based yield measurements to create real-time reaction capability
- Reduce product loss and giveaway
- Track and reduce downtime
- Identify, modify, and eliminate waste
- Reduce costs
- Increase customer confidence with reliable, readily accessible data
- Assist in meeting SQF and BRC certification standards for training and document control
- Continually improve your company's performance



When one Perdue Farms, Inc., plants was selected for the HACCP-based Inspection Model Program (HIMP), Perdue's Corporate QA Manager Rod Flagg began his search for a software vendor who could help the plant meet HACCP requirements. Perdue selected CAT<sup>2</sup> to supply software for the program.

After success with HIMP, Perdue's QA manager at the Lewiston, North Carolina plant, Bill Pulaski, realized his plant's need for a comprehensive software package that included plant monitoring, quality control, and HIMP all in one package. Providing wireless real-time data collection, CAT<sup>2</sup>'s Food Safety Quality Management series (FSQM) was his answer.

"We wanted a real-time data collection solution that would support our Statistical Process Control (SPC) applications," Pulaski said. Lewiston's production output of two million birds per week (some further processed) and three systems, each with its own chiller, tray-pack, CVP, and export features can all be managed with FSQM. "We felt this was the best choice considering how the direction of HACCP regulations were going."

"The FSQM module addresses HACCP's seven principles and gives us better quality control over our processes," says Flagg.

After installation, Perdue saw substantial reduction in time dedicated to HACCP activities. Personnel now concentrate on other issues, like production quotas, knowing safety monitoring is being accomplished.

# **Technical Information**

### **PREVENTION OR CURE**

- Complete process structure is defined, describing each step
- Unlimited checks may be linked to each process step
- Root causes and corrective actions may be defined for each measure, to be applied immediately upon measure alarm or failure
- Contains all the monitoring and verification requirements for a HACCP plan
- Powerful, validated data collection features
- Significant savings in time, effort, and manpower
- Robust data collection and analysis tool for food safety, quality, production, safety, and maintenance

### **ALERTS OR WONDER WHAT HAPPENED**

- Customize alarms, warnings, run rules, and checks
- Users alerted on trends prior to a measure reaching its critical limit
- Alerts can be escalated to levels of management
- Alerts can be sent as text pages and emails, as well as visual alarms on plant floor if:
  - Scheduled checks are overdue
  - Alarm or critical limits have been breached
  - SPC Run Rules are breached
  - Unmanned data collection devices stop responding
- Failures and alarms are tracked with corrective actions and future preventive actions
- Ability to schedule checks and alarm if not completed
- Force checks to be done in the designated sequence

### **EFFICIENCY OR GUESSWORK**

- Wireless data collection from plant floor
- Manual and automatic downtime collection
- Data collected on the plant floor is available for alarming, reporting, and real-time analysis
- Records a secure electronic signature for monitors and verifiers
- Failures require root cause, and supervisors can be notified
- Integrate with real-time data collection devices such as PLCs and sensors
- Yield may be calculated from weights at various points in plant and compared to critical limits

### **REAL-TIME INFORMATION OR PAPER TRAIL**

- Collected data can be analyzed using the built-in SPC charting
- Customizable KPIs and data visualization tools visible through Executive Dashboards
- Electronic specifications and picture aids may be viewed on the plant floor
- Store digital pictures tied to specific checks to confirm conformance or non-conformance
- Data can be traced by lots, batches, lines, machines, and associates
- Prove a high degree of traceability to auditors or customers
- Implement AQL inspection standards based on expected production throughput

# **Configuring Checks**

FSQM manages the configuration of various master files and all checks that will be performed in the plant. The application's process structure is designed using plants, departments, process steps, and measure definitions.

Both alarm and failures limits may be defined for each check; these limits may be specified by product code where necessary. Failure limits correlate to critical high and critical low specifications. High and low alarm limits may be used to warn operators and management that a check is trending towards a failure, allowing them to proactively respond to the problem, reducing failures and downtime and improving efficiency.

Allowed corrective actions may be assigned to each check; when a check exceeds its allowable limits, the operator must choose from this pre-defined list of actions.

FSQM's paging notification system will send emails or SMS text messages to personnel, notifying them when a check exceeds an alarm or failure limit, is late being performed, when SPC run rules have been breached, or when wireless devices stop sending data to the server. Check results may also be sent to scoreboards on the plant floor to allow immediate visualization of results and trends.

FSQM facilitates food safety and quality regulation and auditing schemes such as HACCP, BRC, ISO, and SQF as related to the Global Food Safety Initiative Benchmarking Standard. FSQM also contains the necessary tools and reports that allow companies to maintain paperless HACCP systems, saving time, effort, and manpower.



# **Collecting Data**

Once checks have been configured and scheduled in FSQM, data may be collected in several ways. Data may be sent directly from machines and devices on the plant floor, or operators may use touchscreen, hand-held, or tablet computers to capture data.

### **UNMANNED DEVICES**

The FSQM application can be interfaced with existing devices on the plant floor, including PLCs, production equipment, and forming machines, to send data such as downtime, pressure, and strokes per minute directly to the server. Wireless sensors may be installed to record temperatures or transmit pH, flow, pressure, chlorine, and humidity levels without operator interaction, creating a powerful yet flexible real-time monitoring network.

### **OPERATOR EQUIPMENT**

Tablet computers and PCs may be integrated with wired or wireless calipers, Bluetooth temperature probes, and scales. This equipment will automatically populate data for the operator, reducing data entry errors.





# **FSQM** TOUCHSCREEN

The FSQM Touchscreen application runs on touchscreen tablet computers or PCs. Checks may be filtered for each unit so that only checks done for specific processes, people, or products will appear.



When performing a check, an operator must enter a PIN number; the system records a secure electronic signature, which is a CFR-approved substitute for the written signature required by the USDA.

FSQM Touchscreen V 10.17.00 (02.14.20) —		C Select Responsible Mc By Number  By Nam Employee No 0900 0953	e Employee Name Jack Teague Tanner Sullivan		×
Perform Audits		16 999 999M	Brandon CAT2 Test Operator CAT2 HAT Monitor	$\triangle$	7
Perform Jobs					7
				¥	•
Calibrate Probe	ŀ		PIN:       1     2     3       6     7     8	4 5 9 0	)

**Process-based checks** include all checks that are not linked to a product code. Common process-based checks include metal detection, room temperatures, and equipment checks.

**Product-based checks** include all checks that are linked to a product code. Common product-based checks include weight, yield, size, label, and quality checks. FSQM has a large variety of different product checks for various data types.

C Record Will Be Changed						
General	Process Checks		Configuration			]
Check Types	Common Checks	Date/Time Checks				
Sample Basis/Requirements	Context Check	🔲 Date Check				
Products	Status Check	Time Check				
Schedule By Day Of Week	Boolean Check	Time Range Check				
Real Time	Downtime Check					
Natifications			Allow check to be	performed on Handhelds		
Nouncations	Checkbox	roduct Based Check	Automatically Read	I From Probe When Check Is Launched		
Corrective Actions	Product Checks					
Documents	- Product Checks					
Custom Keys	Common Checks	Goods/Packaging/Labe	l Checks	Weight Checks		
SPC Rules	Context Check	Julian Date Check		Simple Weight (Use P,Q,R or S Basi	s)	
Holds		Expiration Date Check     Product Decomposition		Check Weight For a Product		
Audit Details	Group Defect	Material Verification		Yield Checks		
Display Keys	AQL Mil Standard	Net Weight (Actual-Gro	iss)	Multi-Point Yield		
Linked Checks	Single Entry (Use Basis)	Net Weight Composite (	(compare label to items)	Multi-Point % Yield Gain		
	Single Entry (Use Sample Set-Fails %)	Date/Time Checks		Multi-Point Yield W/DWeil Time     Product Yield		
	Calculated Checks	Time Check		│ % Yield Gain		
	_ Pieces Per Weight	Time Range Check		Injection Percent (use B,C or D Basi	is)	
	Sof Total	Other		Product Retention		
	Daily Average	Equation Check				
				0	к	Cancel
_						

**Audit-based checks** are a combination of any process- and/or product-based checks; checks are assigned to an "audit" to create a sequence for the operators to follow.

C Role Checks								- 0	ı x
Audits 7000-0400 Line Monitoring 7000-0400 Crganic Run Monitor 7000-0400 Refrigeration Temps 7000-0400 Washer of and Tem		Do A Che For Aud			Do From Selected Check	€		F	
7000-0500 Fin. Product Eval. 1000 Room Monitoring Slaughte 8000-0100 SSOP Slaughter 8000-0100 SSOP Status 8000-0110 Pre Op GMPs	$\bigtriangleup$	Do Sin Che	gle eck		11:4 Jaci Default/AL	44:39AM k Teague L	Down Time	Ċ	5
8000-0700 Patty AQL 8000-0800 Packaging Check 901 Giblet Monitoring Form 903 Weight Range	$\stackrel{\mathbf{v}}{\bigtriangledown}$	Sim Gra	ph	2			ALL	40	* *
Rec         Group         Measure           1         Beef SSOP Status         Carcass Stamping	Details Grap	h   Rang	e Histogram	SPC Chart	s		-		
Beef SSOP Status Carcass Washing     Beef SSOP Status Carcass Washing     Beef SSOP Status Exophagus Occlusion     Beef SSOP Status Evisceration     Beef SSOP Status Eviscation     Beef SSOP Status Hand Washing     Beef SSOP Status Hand Washing     Beef SSOP Status Head Washing     Beef SSOP Status Head Washing     Beef SSOP Status Leather Removal     Beef SSOP Status Leather Removal     Beef SSOP Status Partice Status Leather Removal     Beef SSOP Status Partice Status Leather Removal     Beef SSOP Status Partice Status Partice Status Partice Status Partice Status Partice Pumping v	Date	ſime	Result	<u>Target</u>	Status Proc	uct Lot No	Green Wgt	Final Wgt	V1V
	14 44 4 ?	) )) )I	•						<u> </u>

Status checks, commonly used for SSOPs and GMPs, may also be performed as role-based checks. Check screens will vary based on the type of check that was selected. A status check assumes each check has passed (green) until it is marked as a failure (red).



Some checks may be simple pass or fail checks.



Checks may record weights and pass or fail based on a percent of compliant samples.

Collect Weight	t Ranges							- 0	×
5000-0800 Fillet Quality Piece Data Weight Range Hist 000016 Collected Total Wght: Ave Wght: Stand. Dev:	0 0.0 0.000 0.0000	Seg Weight	<u>V1</u>	Add Weight	Weight: Prompt acceptable L Within Spec coeptable H acceptable H	0.000 Rnge Low Hi 1 0.000 8 3 87,000 13 4 122,000 13 5 134.000 99	ah Count % 7.000 5.000 9.000 9.000		
Scrap %: Acceptable Lo: Acceptable Hi: Unacceptable Lo: Unacceptable Hi: Verifier:	0.0000 87.004 125.00 81.004 134.00	00 00 00		length	width	thickness	Blood Spots	Bone	
Manual Entry Delete La	st Weight	Last Weight:	o.000	ilage>1/4"x1/4	Misshapen	Foreign Material	Globular Fat	Cuts or Tears	
		R	<b>i</b>	<b>X</b>		0			

When any check exceeds its critical limits, a red failure screen will appear. The operator must select a root cause, allowed corrective action, and enter a comment for the check.

Corrective Action Screen	Low Limit : 1	.000 Hig	– h Limit :	<pre>99.000</pre>
Knives		% Failure /	Allowed: Result:	0.000
Root Cause:	Residues			
Corrective Actions:	Action is Required			-
	00000000			
Identify Associate:				
Comment:	[			_
Ø	Accept			

# **EQUATION CHECKS**

Equation Checks are a new measure type developed to enhance the capabilities of the FSQM module for CAT<sup>2</sup> customers with complex calculation and reporting needs. Equation-type checks allows users to configure complex equations in the system using data entry results from multiple measures to calculate to a result. While complex calculations could previously only be calculated in a report from the plant floor raw data, equation checks allow those calculations to occur at the point of data collection and that result be applied against critical and alarm limits. Equation checks allow FSQM to be configured to collect a nearly unlimited range of data types and have those measure results pass or fail in real time on the plant floor.

🔺 Equation Builder		×
4000-0800 Evisceration AQL Total Defects		Equation Version 3
Step Editor		Set as Current Version Create New Version
#     Type     Parameter       1     Variable     Num1       2     Operator     +       3     Variable     Num2	Operator           C (+) Plus         C (-) Minus           C (*) Multiply         C (/) Divide           C (() Left Pare         C ()) Right Parei           C (%) Modulo         Comparators           C (=) Equal         C (⇔) Not Equal           Add         Update	Step         SampleValue = Num1 + Num2           1           Step           Step
	C (AVG) AVerag C (IIAX) Maximum C (MIN) Minimum C (RNG) Range C (SUM) Sum C (CNT) Count C (STD) Standard Deviation Add Update	Equation Variables       Variable Name     Initialized in Step       Variable Name     Initialized in Step       Num1     0       Numeric Check Result       Num2     0       Numeric Check Result       Numeric Step Result
14         4         ?         >>>>>1         4         >           Delete Parameter         •	Numeric Value	It     It     Image     Im

# **Viewing Results in FSQM**

As soon as data is collected on the plant floor, the results will be available in the FSQM application. The operator may view various types of useful information from within the FSQM Touchscreen application, including data and graphs of check results. FSQM can also send check results directly to scoreboards on the plant floor, providing real-time data to personnel in any department.

# REPORTS

Reports may be used to review and analyze data; there more than 50 reports in FSQM, including the pre-shipment review and compliance report that allow personnel to review and electronically sign off on results.

	C CAI's Food Safety and C	Juality Management					
	File Security Master Files	Reports Window					
		Print All Checks For a	Process Step				
		Print All Injection Chec	ks For Date Range				
		Sampling Summary SI	neet				
		Failures For a Date					
		Failures For an Audit					
		Failures For a Measur	e and Date				
		Failure By Locality					
		Failure By Root Cause	•				
		Failure Frequency Re	port By Process S	ep			
		Failure Frequency Re	port By Measure				
		Defect Frequency Re	port				
		Root Cause Stats					
		Failure Ranking Repor	I Report				
		Product Pallure Rankin Product Defect Check	is By Date and Pro	juct			
		Compliance Report	,				
		User Change Trail Re	port				
		Sampling Activity Rep	ort				
		Print Process Structur	re				
		Data Sets					
		Product Net Weight C	necks				
Pr	e-Shipment Review For Period	6/10/2010 0:00	To 6/10/2010	8:04 Document	Number :		nclude CP's
Process Step	Measure / Product	Scheduled	Actual	Check M	onitor / Verifier	Lot #	Tag #
Y-0100 Breading	Check Wgt	6/10/2010 10:06 6	J/10/2010 10:06	1.8540 (1)			
Y-0100 Breading	Check Wgt	6/10/2010 10:10 6	i/10/2010 10:10	1.8540 (1)			
Y-0100 Breading							
breading	Check Wgt	6/10/2010 10:10	5/10/2010 10:10	1.8540 (1)			
Y-0100 Breading	Check Wgt Check Wgt	6/10/2010 10:10 0 6/10/2010 10:12 6	5/10/2010 10:10 5/10/2010 10:12	1.8540 (1) -1.4000 (1)			
Y-0100 Breading Y-0100 Breading	Check Wgt Check Wgt Check Wgt	6/10/2010 10:10 1 6/10/2010 10:12 6 6/10/2010 10:30 6	\$/10/2010         10:10           \$/10/2010         10:12           \$/10/2010         10:30	1.8540 (1) -1.4000 (1) 1.8550 (1)			
X-0000 Breading Y-0100 Breading Y-0100 Breading	Check Wgt Check Wgt Check Wgt Check Wgt Check Wgt	6/10/2010         10:10         1           6/10/2010         10:12         4           6/10/2010         10:30         6           6/10/2010         10:30         6	\$/10/2010         10:10           \$/10/2010         10:12           \$/10/2010         10:30           \$/10/2010         10:30	1.8540 (1) -1.4000 (1) 1.8550 (1) 1.8550 (1)			
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V-000 Breading V-0100 Breading V-0100 Breading V-0100 Breading V-0100 Breading Breading	Check Wgt	6/16/2010         10-10         1           6/16/2010         10-12         1           6/16/2010         10-10         1           6/16/2010         10-30         6           6/16/2010         10-30         6           6/16/2010         10-30         6           6/16/2010         10-30         6           6/16/2010         10-30         6	\$/10/2010         10:10           \$/10/2010         10:12           \$/10/2010         10:30           \$/10/2010         10:30           \$/10/2010         10:30           \$/10/2010         10:30	1.8540 (1) -1.4000 (1) 1.8550 (1) 1.8550 (1) 1.8550 (1) 1.8550 (1) 1.8550 (1)			
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In addition to the "canned reports" seen above, customized data sets may also be built in FSQM or by using SQL Server Reporting Services. SSRS reports provide robust customization and data synthesis capabilities, and CAT<sup>2</sup> has a dedicated report-building team to assist in building custom reports for management, regulatory, and continuous improvement use. SSRS reports may be exported to various other formats (Excel, Word, PDF, etc.) as well as viewed via CAT<sup>2</sup>'s Executive Dashboard suite.

### **DATA ANALYSIS AND VISUALIZATION**

CAT<sup>2'</sup>s Executive Dashboard is a powerful portal that provides management with custom real-time charts, graphs, gauges, and reports that can be used to effectively oversee personnel, machinery, and production processes from any location within an organization. Data can be plant-specific or company-wide, at a high or detailed level. The Executive Dashboard is completely customizable, allowing each user to set individual preferences as well as create their own reports using plant-floor data.





#### **Features and Benefits**

- View any data for any process in any department from one location
- Customize the dashboard with personal reports and preferred settings
- Monitor real-time data being collected by employees and equipment on the plant floor
- Know the moment a process reaches a critical state
- Discover and track data trends within one location or across a corporation

#### Scoreboards

Our plant-floor scoreboards provide real-time feedback to operators on the plant floor through graphicrich reports, charts, and dashboards. The scoreboard works with large LCD and LED television screens that are enclosed in protective Nema 4X housings. Real-time performance can be displayed according to production lines and ranked, creating incentive to improve efficiency in friendly competition.

#### **Features and Benefits**

- Displays customizable reports and dashboards that can be set for each individual scoreboard
- Displays custom marquees that are easy to set up with scheduled messages
- Reports performance by production line, department, or other parameters
- Provides real-time feedback to operators on the plant floor
- Displays results and alarms the moment a process reaches a critical state
- Increases yields and efficiencies using friendly competition and incentive programs

# **Document Control**

The FSQM document control functionality allows you to create a central repository for files and manage version control. The system supports web addresses, PDFs, graphics, audio, and video files. These files may be linked to checks, and a report can be run to identify when documents lapse.



# **Training Register and Take Test Application**

Using the FSQM training register, our clients can manage training, training materials, attendance, tests, and test results from within FSQM. The courses and tests are created in FSQM, while the tests are taken in an auxiliary application.

Course Ref	Performed By	Lapse Date	Employee No	Employee Name		
PPE Training		2/14/2011	900	Sara Thompson		
Safety Training	RES	303/2011	902 903 905 905 905 905 907 909 910 911 912 913 914 915 915	Luisianos Luisianos Esphan Phon Bisokrath Amy Bul David Manning Carly Florine Brandon Hodges Jordan Ballew Kaylee Luttrell Jordan Ballew Kaylee Luttrell David Starford Julyd Crotts Alivia Grace ► ► ► ►	]	
			Employee No	Employee Name	Performed By	Dat
			18681	Steven Moore	RES	2/28/2
			0001 900	Rachel Monitor Sara Thompson	RES	2/28/3 3/03/3
44 4 ? <b>} } }</b>						
ning to cover good manufacturing pr	actices on the plant floor		14 44 4 ?	· • •• •1		
			Insert	Change Dele	te Scores	

Trainees use the Take Test application to demonstrate their comprehension and retention of the training material. Users may sign in using an employee number and PIN or scan in with their ID badge. When trainees complete their tests, their scores will appear in FSQM's training register.

∆ Test S	A Test Scores							
0001 Course:	1 Rachel Monitor rse: PPE Training Version: 1 Version: 1							
Question	Question Text	Answer A	Answer B	Answer C	Answer D	Answered		
	Where should you NOT wear your smock?	On the plant floor	In the hallway	In the lunchroom	In the restroom	C		
3	Which is not an example of PPE?	Private Personal E Haimet	Personal Plastic E Safety glasses	Personal Protective Ear plugs	Hersonal Hastio Enginee Hard hat	C Å		
14 44 4	? <b>} }</b>							
	Change Answer			<b>₽</b> +	Close and Exit Test			

# **Product Options, Features & Differentiators**

### **INTEGRATED PRODUCT HOLD & RELEASE SYSTEM**

When used together, the Quality and Production modules contain integrated hold-and-release functionality. Hold types are configurable and restrict movements within the system. The movement types are either defined automatically or can be defined in our system admin. So, a product that is on X type of hold cannot perform Y types of movements. FSQM now includes training departments, which allows users to define group types and set permissions based on those group types. The hold types in include:

- **Cascading Holds:** This hold is applied to the object and affects everything attached to that object. For example, a user can place a cascading hold on a mix lot, and everything that was made from that mix lot will also be placed on hold.
- **Shipping Holds:** With this type of hold, products can still be picked for orders, but they cannot be shipped until the hold is released.
- **AQL Holds:** Acceptance Quality Limits holds places goods received on hold until the quality of the goods has been verified. (Note: If you do not select "cascade," that is considered a positive release hold and is only used for products, spices and materials.)
- **Time-Release Holds:** These holds drop off after a predetermined amount of time.
- **Freezing Hold:** This is a type of time-release hold for a product that needs to be held in a freezer for x amount of time before being shipped.

Holds can be released in four ways: 1) on handhelds directly, 2) on the handhelds when a user performs a restricted movement, 3) in the admin system, or 4) on the touchscreen as a result of a check.

😨 FSQM		
Ĉ	Holds	F
C Holds		
By Hold By Subject		
Show Inactive Holds	Hold ID:	Hold Type: ALL
Hold ID Hold Type Basis Name	Employee No Hold Origin Bar Code Hold	Date Hold Time Reason Check Number
180516-100918-cat2 AQL Hold Manual 180516-114435-cat2 AQL Hold Manual	cat2 M 000000 5/	/16/18 10:09:18AM test /16/18 11:44:35AM test
190225-091536- AQL Hold AQL Hold	0900 F 000000 2/	/25/19 9:15:36AM MFC01-002252-190225-1
190225-091948- AQL Hold AQL Hold AQL Hold	0900 F 000000 2/ 0900 F 000000 2/	/25/19 9:19:48AM MFC01-002252-190225-1 /25/19 9:20:13AM MFC01-002252-190225-1
190313-103907- AQL Hold AQL Hold	0900 F 000000 3	/13/19 10:39:07AM MFC01-002252-190313-
190604-122812-cat2 Shipping hold Manual	cat2 M 000000 6	/04/19 12:28:12PM TEST
190621-134701-cat2 AQL Hold Manual	cat2 M 000000 6	/21/19 1:47:01PM t7gik
190709-140210- AQL Hold AQL Hold	0900 F 000000 7/	/09/19 2:02:10PM MFC01-002252-190709-
2048-152220-cat2 AQL Hold Manual	cat2 M 000000 4/	V08/20 3:22:20PM Hold Reason Testing
Subject Type Subject ID Origin	ator Subjects Subject ID	Date Time Trans
Case 550014094000004	Case 550014094000001	4/03/19 1:45:08PM R
	Case 550014094000002	3/13/19 10:39:07AM H Place Hold Release Hold
	Case 550014094000002	4/03/19 1:45:08PM R 2/12/19 10:29:07AM H
	Case 550014094000003	4/03/19 1:45:08PM R
	Case 550014094000004	3/13/19 10:39:07AM H
	Case 550014094000005	3/13/19 10:39:07AM H
	Case 550014097000001	3/13/19 10:39:07AM H
	Case 550014097000001	4/03/19 1:45:08PM R
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	0000140100002	
14 44 4 ? > >> >1 4	<b>)</b> 14 44 4 ? <b>) ) )</b> 1	▶ <u>Close</u>

### SITE SYNCHRONIZATION

Site Synchronization (Site Sync) is a new feature to allow the replication of data in the CAT<sup>2</sup> Food Safety and Quality Management (FSQM) system from a corporate "parent" database to subscribed "child" plant databases and back again. For multi-site implementations, this allows for standardized measures and audits to be created at the corporate database and be pushed down to the plants for execution. The results of these measurements are pulled back up to the corporate database for reporting. This creates the opportunity to have standardized data collection company-wide with the assurance that measurements and data collection are being performed in the same way across multiple plant sites.

By maintaining the critical limits, product limits, and quality parameters at a central corporate database, the data and reporting from the plants are normalized and benchmarks can be better established and controlled. This also streamlines the amount of configuration and maintenance of the FSQM system, since audits and measures can be built and maintained in one database instance rather than at each individual plant site, and changes to critical limits or quality parameters can be immediately deployed company-wide.

# LABORATORY INFORMATION MANAGEMENT SYSTEM (LIMS)

CAT<sup>2'</sup>s Laboratory Information Management System (LIMS) was developed specifically for the foodprocessing industry and exceeds the capabilities of a typical laboratory system. As plant-floor samples are collected, LIMS generates documentation for each sample as part of a strictly enforced, bar-coded chain of custody. As samples are received into the lab, user-defined operating procedures ensure that personnel follow appropriate protocol. Analytical instruments may also be integrated with LIMS to automatically capture test results, reducing human error. With LIMS, information flows more efficiently, and product is shipped in a timely manner; the bottom line is improved, while accuracy and compliance are ensured.

#### Benefits

- Ensures complete traceability and accountability with a secure, bar-coded chain of custody
- Offers a complete library of dynamic web-based reports for data analysis
- Reduces the risk of non-compliance by eliminating errors and missing data
- Integrates with existing laboratory equipment to improve performance and reduce data entry errors
- Integrates with CAT<sup>2</sup>'s Warehouse Management System (WMS) to place product on hold and prevent product from being shipped until lab results are released

#### Features

- Defines samples by process, product, or customer specifications
- Allows for scheduled, monitored, and alerted sampling as well as ad hoc sampling and testing
- Allows users to receive multiple samples at one time as well as update multiple test records simultaneously
- Sends SMS and email alerts for missing or late samples as well as alerts lab personnel using color-coded prompts
- Offers a fully integrated review and approval process

# Factory Analytics App - OEE (Overall Equipment Effectiveness)

The factory analytics application is a tablet-friendly web application that lets users customize their data visualizations. The application features customizable screens with any number of resizable and reorderable drag and drop KPIs that can show historical or live data.

Actual plant performance indicators show any deviation from the set target, or benchmark, compared with the planned production time. The OEE-module calculates the overall OEE percent based on measured quality levels, registered availability and indicated process performance factors. Comprehensive dashboards show actual status and benchmark figures, clearly indicating the most effective ways to reduce cost and increase profits.

**Benefits** 

- Provides downtime reporting by category and description
- Gives insight into metrics for identifying losses, benchmarking progress, and improving equipment productivity

Features

- Captures downtime automatically from and manually via tablet device
- Identifies areas of performance loss (i.e. machine wear, substandard materials, misfeeds, jams, etc.)
- Identifies areas of quality loss reducing need for rework

#### OEE DATA VISUALIZATIONS ON FACTORY ANALYTICS DASHBOARDS

E Factory An Home • Overall Equipment E	alytics fficiency • Weighing Line 1 •	Downtime Details (WL1)		🥚 Past Data 🛛 📩 5/1/20, 4:45 PM - 6/2/2	D, 4:45 РМ (\$)04: +	47:46		
WL1 Availability	WL1 Performance	WL1 Quality	WL1 OEE					
80.7	80.8	80.7	80.7					
WL1 Downtime by Machine			Legend	≡ 7 Factory Analytics				🛑 Past Data 🛛 📋 5/1/20, 4:45 PM - 6/2/20, 4:45 PM 🔇 04:45:53
Weighing Activit			Dispensor Error	Home 👻 Live/Statistic Data 👻 Weighing	Line 1 👻			+ 8
Weighing Activit			Motor Alarm	WL1 Production Info		Weighing Activity 1	Weighing Activity 2	
0 1,00 WL1 Downtime over time	0 2,000 3,000	4,000 5,000	6,003	Target         Status         Production Start           1 KG         Running         00:00:00           Batch         Prod. Time         Product           BCWB01         3:10:00         Breaded           Chicken Wing:         Chicken Wing:	Product Code BCW00001 Tolerance 1 KG	+	+	
				WL1 Live Data		WL1 Portion Weight Distribution		
60				Total Portion Weight         Reject Weight         Avg. Portion Weight           212945.3         88.8         Weight         S21.9           Portions per Minute         Last Portion         K0/Hour         T141.7	Total Portion Count 408	50 1 (4); (4); (4); (4); (4); (4); (4); (4);		
				WL1 Portion over time				
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### **New BLOCKCHAIN CAPABILITIES**

#### IBM Food Trust Business Partner

CAT Squared is the first manufacturing execution system (MES) provider in the food industry to become an onboarding partner for IBM Food Trust<sup>™</sup>, a blockchain-enabled global network of food chain participants that securely connects supply chain data across the ecosystem with trust and transparency.

#### **CAT<sup>2</sup>** FoodTrace

To help our manufacturing customers build trust and transparency with consumers, we've begun development on CAT Squared FoodTrace, a blockchain-enabled traceability platform that will allow manufacturers to make available varying levels of traceability data to other supply-chain stakeholders.

There will be three levels of visibility available:

- **Manufacturer Portal** will provide CAT Squared's customers with a complete view of their plant-floor production data as well as supply chain data.
- **Retail Portal** will give retailers access to select data for mock recalls and freshness tracking.
- **Consumer Portal** will show select traceability and freshness data to consumers via scanning the product QR code with their mobile device. It will also allow manufacturers to offer coupon discounts and view data on what products are being scanned at which retail outlet. (Scan QR codes above to demo the Consumer Portal.)



