CONTROL OF NONCONFORMING PRODUCT

Quality & Industrial Performance version 3

“Going From Reactive to Proactive”

Introduction

PURPOSE:

- Ensure that product that does not conform to specified requirements is:
  - Prevented from unintended use
  - Contained and/or segregated
  - Dispositioned by Management
- Ensure proper communication if there is an escape.
- Establish a consistent labeling identification process using Visual Management such as (Stoplight) **RED, YELLOW, GREEN** method.

SCOPE:

- Production material or components.
- Engineering Samples
- Prototype Samples
- Incomplete Processed material
- Other materials not intended to be shipped to the customer.

RESPONSIBILITY:

- Ownership
  - Quality Manager
- Contingency Plan for All
- Situations

Benefits

- Assures all suspect and nonconforming product is contained.
- Increases customer satisfaction and communication.
- Reduces quality disruptions through control and continuous improvement.
- Assures all issues are resolved with all customer contacts: internal and external.
- Assures a systematic approach for all issues.

- **Identification and segregation of NC, what are we searching for ?**

Item	Requirement	#Criteria	Criteria requirement
CNC1	Nonconforming (NOK) and suspect material are identified and segregated in order to prevent them from unintended use.	CNC11	**Consistent marking & visual management (floor marking , labels, specific boxes etc.) procedure is defined and kept in entire organization to ensure that identification and handling of NOK or suspected material is in place to avoid mixing with conform parts.**
		CNC12	**The standard defines the exit criteria of the alert (production, logistic, maintenance…). Alert process is defined on the basis of the severity level of non-conformity and applied for both external and internal issues once problem occurred at least as per FR issues.**
		CNC13	**If after sorting (e.g.:, hourly sample product audit) NOK parts have been found, it is necessary to ensure that all the parts produced from last known good parts are handled as suspected parts.**
		CNC14	**NOK parts are segregated, recorded and their storage is managed including NOK boxes, Quarantine area which has securized access and quantities in quarantine are managed.**
		CNC15	Quality status of the product (physical or data-processing) are identified in entire process.

Criteria of Requirement

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Next Requirement

- **Material Identification**

IDENTIFICATION OF NONCONFORMING OR SUSPECT MATERIAL IS PARAMOUNT

- The achievement of customer expectations relies on a method to contain defects (Nonconforming product) within the manufacturing process and implement corrections to protect the next downstream customer.

- Organizations shall establish a method to ensure product that does not conform to specified requirements is prevented from unintended use or installation by:
  - Using consistent identification and visual management(e.g. tagging, dedicated scrap bins, paint dot etc.)
  - Released using a defined process and authority (decision rules, responsibility and escalation process)
  - Using a containment method to track and manage non-conforming and suspect material identified both at customer or supplier process
  - Eliminating the risk of nonconforming/suspect parts be mixture with good parts through standardized work, process audit and action plan

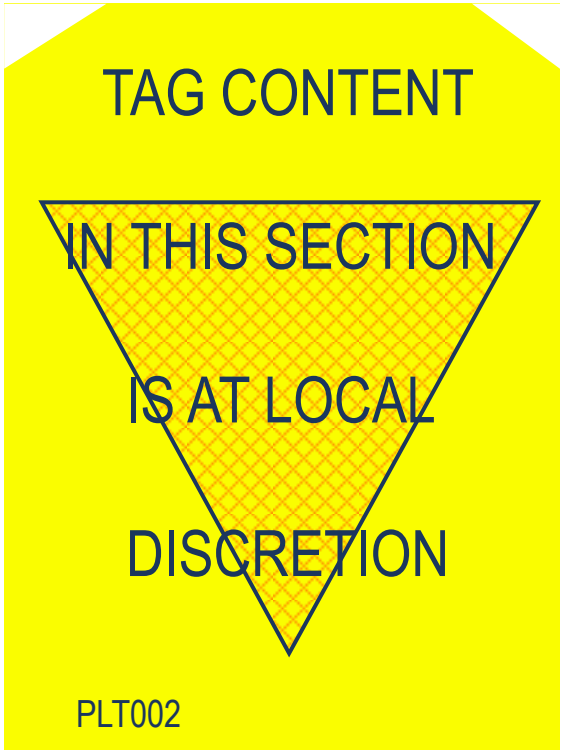
(Example)

SCRAP

REQUIRED FOR SCRAP PRODUCT/CONTAINERS

(SCRAP BINS PAINTED RED DO NOT REQUIRE A TAG)

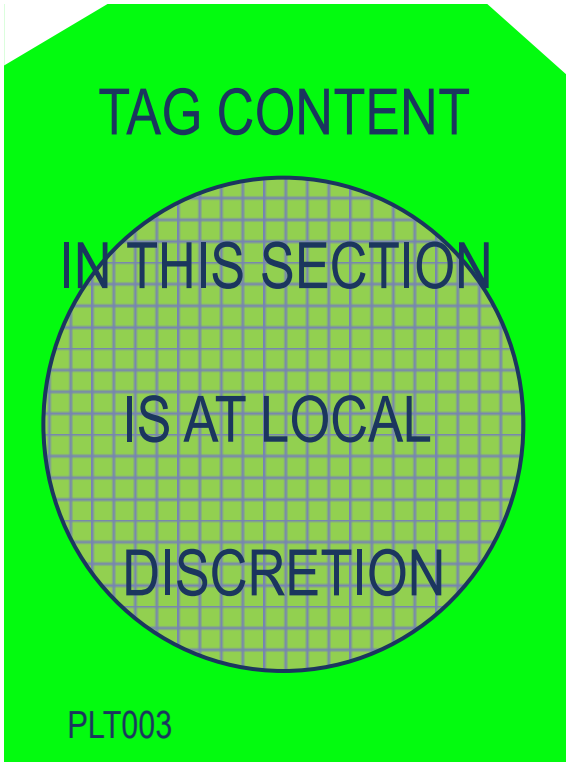
SUSPECT
DO NOT USE



REQUIRED FOR REWORK, REINSPECT, SUSPECT PRODUCT/ CONTAINERS

TAG SHOULD SHOW LAST OPERATION.TO ASSURE PROPER REINTRODUCTION

OK FOR USE



ANY COLOR (except red or yellow) FOR CONFORMING PRODUCT IS ACCEPTABLE

(IF YELLOW IS NOT USED TO DISTINGUISH SCRAP FROM SUSPECT, THE RED TAG shall HAVE DISPOSITION.)

- **Example:**

Using visual tagging (Figure 4) and color bins(Figure 1, 2 and 3) for identification in plastic Injection section:

- Red – Scrap
- Yellow – Suspect / Under Inspection / Rework
- Green – Approved

Figure 1

Figure 2

Figure 3

Rack colors and/or Labels: Both examples may be used for Identification

Yellow card is used for Rework , Suspect and/or under Inspection

Suspected Card must contain last operation performed .

Figure 4

Segregation

All nonconforming and suspect product shall be segregated to prevent unintended use or installation through containment.

- At the end of each shift, non-conforming product should be counted, documented, and should be removed from the process/manufacturing area to an off line designated containment area or into scrap containers.

SEGREGATION AREAS:

- Segregation areas shall be foot printed or otherwise identified.

Example:
- Scrap bins
- Rework Tables
- Containment areas
- Nonconforming material hold areas

- A method to inventory non-conforming material is required (Including Date, P/N, Defect, MRB disposition)

- **Segregation**

Ex: Hold Area/Quarantine away from the Line (isolated and foot printed)

- Rack match with products size (Small) .

- Rack match with products size (Large) .

Scrap table :

Containment area:

- **Segregation**

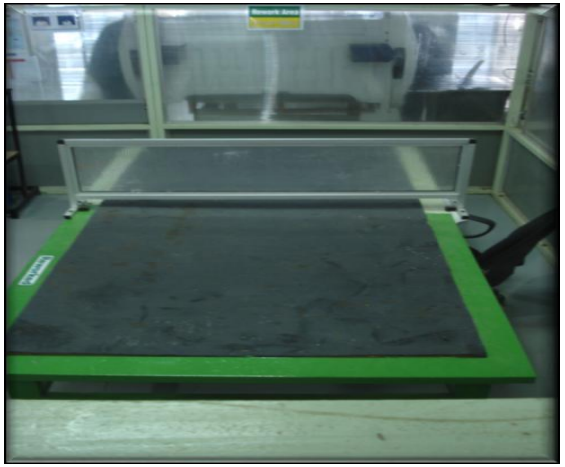
Ex: Hold Area (Quarantine)

Small room isolated from line used as hold & Repair area

Ex: Scrap Rack

Scrap Rack is closed , foot printed , away from line

Ex: Rework Table



Rework table is identified and colored .

Auditor hints

- Check in shop floor that identification tagging system is used in all areas including documentation (check incoming, working stations, control station, rework) and including visual management like foot print, color coding, labels etc.

- Ask operators that every one in shop floor is understanding color coding used inside the organization.

- Scrap boxes size should match with part size.

- Verify quarantine, access is defined, quantity is controlled Verify that avoidance of mixing NOK part ensure via layout of workplace, handling and storing of NC parts.

Containment activity, what are we searching for ?

Item	Requirement	#Criteria	Criteria requirement
CNC2	Containment is segregated and standardized, all the potential quantity and location of suspected material are identified.	CNC21	**Containment process includes securing of stock and pipeline, separated from production line in order to guarantee breakpoint, including the supplier's components.**
		CNC22	**The guaranteed lot is identified and communicated to the customer.**
		CNC23	**Containment worksheet or equivalent contains all the potential locations and quantities, and actions are defined for each customer issues and verified to prevent the further defects documented and communicated internally.**
		CNC24	There is a follow-up of containment actions including their closure dates.

Criteria of Requirement

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Prev. Requirement Next Requirement

Containment

Leadership shall develop, organize and maintain a system for control of nonconforming product to include the following:

- A documented containment procedure to prevent identified defects from flowing to the next customer.
- Containment Worksheet, Quality Alert, Instructions, Operator training records.
- A clear understanding of the standard and the deviation supported by a good visual explaining the standard.
- Safety stock/pipeline protection through fast reaction avoiding potential downtime

Note: Customer approval may be required during a containment activity where task are performed to bring the product back to the standard. This may also require supporting documentation such as work instructions, trial runs, etc.

- For product containment issues, containers shall be identified:

  Red = Nonconforming product

  Yellow = Suspect product

  Green = After breakpoint conforming product

- When sorting, product identified as nonconforming shall not be placed into standard work-in-process or finished goods containers.

Containment – Exit Criteria

The default exit criteria will be used when no other exit criteria is defined. The default criteria is listed below:

- Twenty (20) working days of data from the containment activity, and a summary, which verifies that the normal production controls are effective for controlling the discrepancy(ies) identified in the Containment activity. The time begins accumulating from the date of implementation of permanent corrective action.
- Documentation showing the root cause was identified and verified
- Documentation indicating that corrective action was implemented and validated
- Copies of all documentation revised as required (control plan, FMEAs, process flow diagram, operator's instructions, etc.)
- Documentation indicating that every effort was taken to implement error proofing.

- **Containment Worksheet**
  - **A Containment worksheet shall be used and completed to:**
    - Provide a systematic approach to containing all suspect product
    - Identify a potential quantity and all areas to be checked for nonconforming product
    - Reconcile expected quantities of suspect material vs. actual
    - Document the defect condition and standard to be met
  - **A Containment worksheet should also be used to :**
    - Document the sort method (e.g. visual, gage, boundary sample)
    - Specify the identification method for sorted good/bad product.
    - Track and document results of the containment activity
    - Trigger immediate customer notification if an escape of nonconforming product is possible

- **Containment Worksheet (Continued)**

CONTAINMENT WORKSHEET

(Example)

DEPARTMENT:	DEPARTMENT CONTAINMENT OWNER:	DATE:
Laboratory	G. Hall	1/6/2003
PRODUCT NAME / NUMBER:	**10066044**	
PRODUCT NONCONFORMANCE: Burr on flange		

PRODUCT CONTAINMENT SCOPE

IDENTIFY ALL AREAS WHERE SUSPECT PRODUCT COULD BE LOCATED

LOCATION	POTENTIAL QTY.	AREA VERIFIED	SUSPECT PROD. FOUND? QTY?	VERIFICATION RESPONSIBILITY
Receiving	500	P.S.	500	P. Smith
Laboratory	6	K.C.	6	T. Brown
WIP Storage Areas	1000	P.S.	1000	P. Smith
Outside Processing - (Plating)	1000	C.J.	1000	C. Jones
Scrap Bins	42	K.C.	42	C. Jones
Rework Areas	0	B.T.	0	C. Jones
Shipping Dock	0	K.C.	0	C. Jones
Heat Treater	0	P.S.	0	C. Jones
At Customer	0	B.T.	0	C. Jones
In Transit	0	B.T.	0	C. Jones
Service Parts Operations	0	P.S.	0	C. Jones
TOTAL FOUND	2548		2548	C. Jones

SEGREGATE SUSPECT PRODUCT TO (location, as feasible): 2548 pcs to Containment Area

SORT METHOD (eg. visual, gage, mating part): Visual for burrs

SORT CRITERIA (clear pass / fail standards): Max Burr per standard

I.D. METHOD CONFORMING (eg. mark, tag, sign): White paint dot near defect area

I.D. METHOD NONCONFORMING (eg. mark, tag, sign): Mark defect with red paint.

Communication

Break Point

Only give a break point after:

- You understand the **DEFECT**
- Have contained all suspect product internally and externally
- Have a method to identify and sort out the defect until material from the corrected process is available.
- 100% Inspection ensures defect free/certified stock to the customer

Remember:

Violating the BREAKPOINT is not acceptable. Will almost always result in a PRR being issued and additional containment actions required.

- **Auditor hints**

- Verify that Containment Worksheet is used before initiating any containment.
- Check Containment Worksheet contains all the potential locations.
- Check that countermeasures are put in place for each Alerts.
- Ask team member about containment and its rules.
- Ask one team member perform who containment in any FR issue, how he did the containment and how he filled the Containment Worksheet.

Standardization of rework and repair, what are we searching for ?

Item	Requirement	#Criteria	Criteria requirement
CNC3	Rework or repair is standardized, performed only with necessary authorization and process of reintroducing parts back to line .	CNC31	**Prohibited or authorized rework operations are clearly defined. Authorized rework operations have to be part of part/process approval and present in the production flow chart. Parts waiting for rework have to be handled as suspected parts.**
		CNC32	**Re-use of components is considered as a rework operation. The component re-used must be traced on the finished product.**
		CNC33	**Reintroduction of reworked part includes a marking like colour coding for example, in order to ensure that all control plan inspections & tests have been performed.**
		CNC34	Each reworked or re-used parts is traceable via marking, documented serial number in order to ensure the respect of the basic rules (maximum re-used or reworked authorized).
		CNC35	Ensure that employees who performed the rework operations are trained for this kind of work The rework operation are considered in skills matrix.

Criteria of Requirement

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Prev. Requirement Next Requirement

- **Disposition (reusable or scrap)**

Reusable; (rework/repair)

- A work instruction to perform rework
- A method to identify scrap and rework product traceability
- Customer approval may be required
- Failures Modes from rework/repair are considered in the PFMEA

Reintroduce product

- All control plan inspections and tests shall be performed;
- Product removed from the approved process flow should be reintroduced into the process stream at or prior to the point of removal.
- Reintroduced product needs to be identified and have traceability.
- Best practice would suggest that you do not run product more than twice.

NOTE: When it is not possible to reintroduce at or prior to removal: an approved (Quality Manager) documented rework and inspection procedure shall be used to assure conformance to all specification and test requirements.

- **Auditor hints**

- Rework is part of Process Flow.
- Potential failure modes of rework are detailed in PFMEA.
- Check rework station, standardized work is applied.
- Check if team members understand rework identification process and follow one rework part , how handled , identified , and how reintroduced back to line.

Control of parts under approved deviation, what are we searching for ?

Item	Requirement	#Criteria	Criteria requirement
CNC4	Parts which have deviations, but approved by customer are managed; traceability of concerned products are guaranteed.	**CNC41**	**Deviation is approved according to customer requirement, deviations are defined for a limited period or a defined quantity of parts.**
		CNC42	**If a not approved rework operation is needed, the authorization and release process are defined in regard of deviation rules according CNC41 & CN43.**
		CNC43	**Traceability of the parts delivered under deviation is guaranteed. Manufacturing batches are identified.**
		CNC44	Impact of deviation on process and product is analysed and a temporary work instruction is managed
		CNC45	All the responsible parties have to be included to communication and decision about usage of deviated parts.

Criteria of Requirement

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Prev. Requirement Next Requirement

Customer approval, identification and traceability for parts under deviation

Customer Approval requested

- Supplier must request a customer approval for a product deviation before ship parts. Without this customer approval, it is not allowed ship parts with deviation to customer.
- Customer approval is limited for a period of time and/or quantity of parts and supplier must manage it.

Identification & Traceability

- All parts with deviation must be identified as suspected till customer approve them;
- Traceability of parts under deviation must be recorded by supplier
- Parts under customer approval shall be identified (part or box identification – number of customer approval) before shipping to customer
- Breakpoint shall be established and informed to customer

PSA Deviation Form

Reference : 01276_09_00685
Sort of document : Form

Revisions : v2
change from v1 due to error on the reference of english version (referenced 01276_10_00049 instead of 01276_09_00685)

REQUEST TO DELIVER NONCONFORM PRODUCTS UNDER THE SUPPLIER'S RESPONSIBILITY

Object of the form :

The purpose of this form is to specify the necessary information that allow PSA PEUGEOT CITROEN to authorize a delivery of nonconform products form a supplier.

The supplier has to send this form to each PSA PEUGEOT CITROEN facilities concerned by the nonconform product.

The decision taken by PSA PEUGEOT CITROEN to authorize nonconform product, do not release the supplier from his responsability regarding the nonconform products

PSA PEUGEOT CITROEN will provide the supplier with a written answser by return of the present form. The answer is only availible for the facilities it was sent to.

Additionnal information :

The informations in red are mandatory.

This form is to be sent to all PSA's sites concerned by the request

REQUEST TO DELIVER NONCONFORM PRODUCTS UNDER THE SUPPLIER'S RESPONSIBILITY

Reference of the document : 01276_09_00685

The decision taken by PSA Peugeot Citroen to authorized non conform product do not release the supplier from his responsibility regarding the quality of the product.

Date :

Name, address and phone number of the applicant :

Vehicle :

Organ :

Security and Reglementation impact : Product : R ☐ S ☐ Characteristic : R ☐ S ☐

Client impact : P ☐ A ☐ B ☐ C ☐

Products designation

Ref PSA product :

Date of the first non conform delivery :

Security and reglementation impact description :

Supplier's désignation and Cofor :

Sent quantity :

Date of the next conform product delivery :

Subject and description of the nonconformity :

Supplier's recommendation for assemblage and use by PSA :

Action plan for quality convergence :

List of the other PSA's plant involved :

Marking* : Yes ☐ No ☐ If Yes, what kind of marking :

* : delete where inapplicable

PSA ANSWER :

Delivery of the product authorized : ☐ Delivery refused : ☐

Request number :

Name, address and phone number of the signatory :

PSA comments :

Auditor hints

- Site history of requests for deviations.
- Procedures and forms used on site.
- Check 'Request to deliver non-conform product' for PSA and initial samples are available for deviations.
- Multiskill approach for the decision for initiate deviation request.
- Evidence of traceability.

Control of Non-Conforming Product effectiveness, what are we searching for ?

Item	Requirement	#Criteria	Criteria requirement
CNCE	Performance metrics such as scrap rate (internal ppm), rework percentage, FTQ, VOC, etc. are established and followed at all levels of the operation.	CNCE1	Performance metrics such as scrap rate (internal ppm), rework percentage, FTQ, VOC, etc. are established and followed at all levels of the operation.
		CNCE2	Containment process is managed to Ensure a closure deadline for all concerned issues.
		CNCE3	Deviation process is managed to ensure a closure deadline for all deviation. All deviation must be reported in daily fast response meeting (FR11).

Criteria of Requirement

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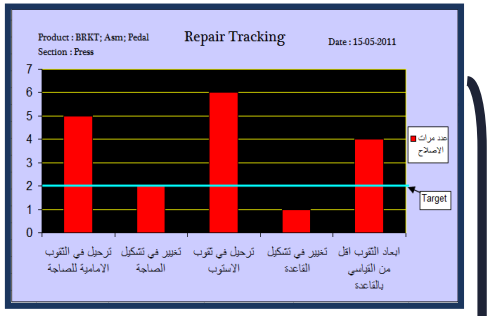
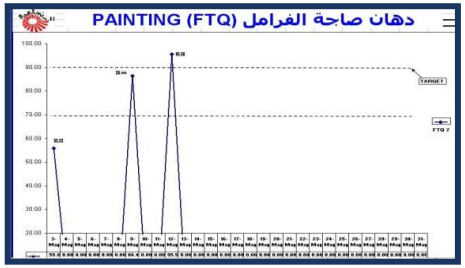
Prev. Requirement
What goes wrong

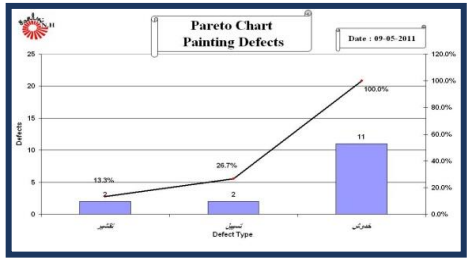
- **Analysis & Effectiveness : Example:**



Repair Tracking

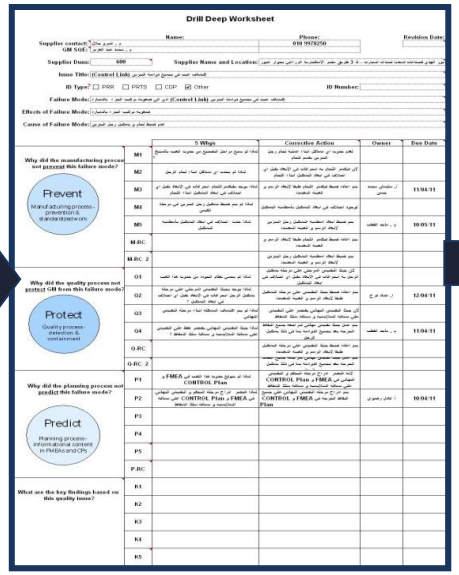


First time Quality



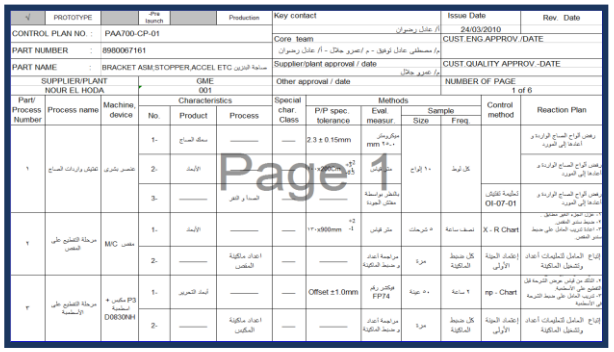
Pareto Chart

* Use pareto to attack top quality issues .
* Same should be done with VOC and Down Time



Drill Deep

* Periodic Review (Monthly) with top management .



Control plan Updated

PFMEA Updated

- **Containment Worksheet vs. Dilution Calculation**

CONTAINMENT WORKSHEET (Example)

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Laboratory	G. Hall	06/01/2003
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PRODUCT NONCONFORMANCE:		
Burr on flange		

PRODUCT CONTAINMENT SCOPE
IDENTIFY ALL AREAS WHERE SUSPECT PRODUCT COULD BE LOCATED

LOCATION	POTENTIAL QTY.	AREA VERIFIED	SUSPECT PROD. FOUND? QTY?	VERIFICATION RESPONSIBILITY
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Rework Areas	0	B.T.	0	C. Jones
Shipping Dock	0	K.C.	0	C. Jones
Heat Treater	0	P.S.	0	C. Jones
At Customer	0	B.T.	0	C. Jones
In Transit	0	B.T.	0	C. Jones
Service Parts Operations	0	P.S.	0	C. Jones
TOTAL FOUND	2548		2548	C. Jones

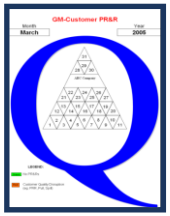
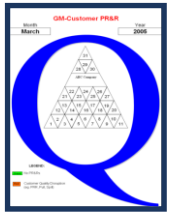
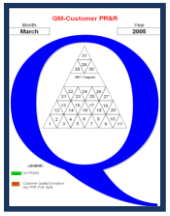
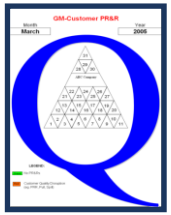
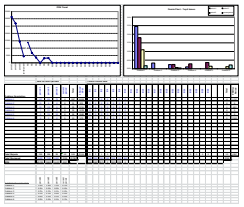
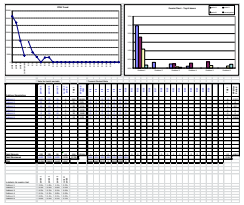
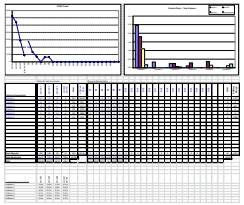
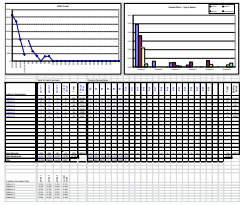
SEGREGATE SUSPECT PRODUCT TO (location, as feasible): 2548 pcs to Containment Area
SORT METHOD (eg. visual, gage, mating part): Visual for burrs
SORT CRITERIA (clear pass / fail standards): Max Burr per standard
I.D. METHOD CONFORMING (eg. mark, tag, sign): White paint dot near defect are
I.D. METHOD NONCONFORMING (eg. mark, tag, sign): Mark defect with red paint.

- **D0–5** days in worst case last piece from the batch
- **D0+5** days in worst case first piece from the batch

=> Dilution = 5 000 / 100 = 50

Compare quantity from Dilution Calculation vs. pieces needed to be checked during containment

CNC Board

	Sector 1	Sector 2	Sector 3	Sector 4
Customer Complaint BP Violation				
Cost of Poor Quality	Sector 1	Sector 2	Sector 3	Sector 4
Containment Activity Sheet - By Sector - Period				

- **Auditor hints**

  - Prior to audit check Controlled Shipping and customer complaints link to control on non conforming product.
  - Verify that containment driven back to the source of error.
  - Verification of countermeasure action.

What goes wrong ?

- Lack of traceability procedure or not followed
- Shop floor team are not trained on using identification codes and cards.
- Use containment area too much which lead at the end not to follow rules as designed
- Area (containers) sizes used for segregation are not suitable with product size
- Range of suspect product not defined properly
- Too many action needed based on monthly performance analysis (FTQ , 6 panels ,…)
- Weak follow up from top management

Prev. Requirement