



Metal Can Defects

Identification and Classification

New

30/04/89

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Metal Can Defects

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DEFECT: ABRASION

CLASSIFICATION:

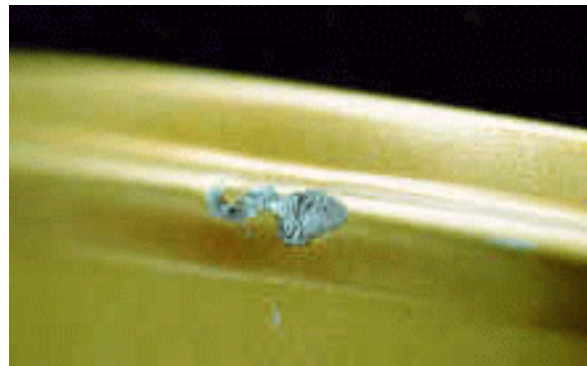
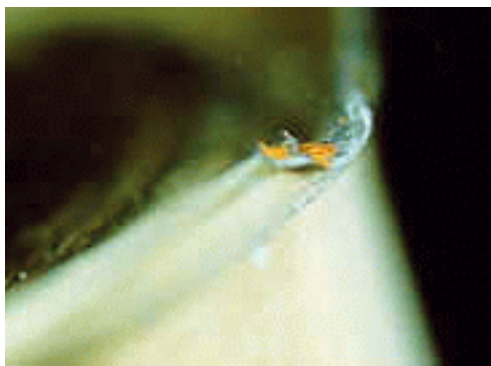
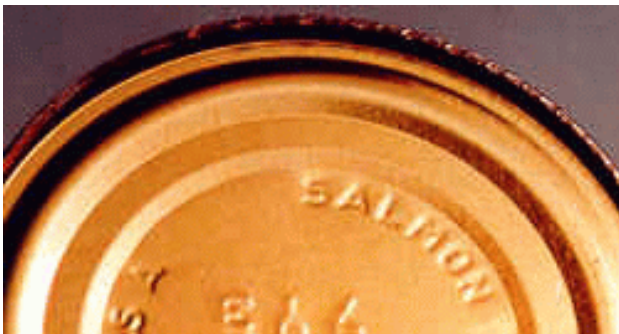
Abrasion is considered a serious container defect when the metal has been reduced to less than 50% of its normal thickness.

DESCRIPTION:

A mechanical wearing of the metal plate. Abrasion results in the weakening of the metal plate making the abraded area susceptible to either fracture or corrosion which could eventually perforate the metal plate.

COMMON SOURCES:

1. The action of moving cable or metal conveyors on stationary cans. This may occur with either empty or filled cans.
 2. Cans being moved against stationary objects with sharp parts. For example loading cans into damaged or rusted retort baskets.
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DEFECT: CHALKY SIDE SEAM

CLASSIFICATION:

Chalky side seam is considered a minor side seam defect.

DESCRIPTION:

Chalky white deposits or corrosion on the side seam solder, which are unlikely to develop into a rusting condition.

COMMON SOURCES:

1. Alkaline boiler water carry over in the 8.0 to 9.0 pH range.
2. "Green" or wet pallet boards.
3. Salt air exposure and/or high humidity.
4. May be noted on cans stored for an extended period of time under unfavorable storage conditions.



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DEFECT: CORROSION

CLASSIFICATION:

Corrosion is considered to be a serious container defect if:

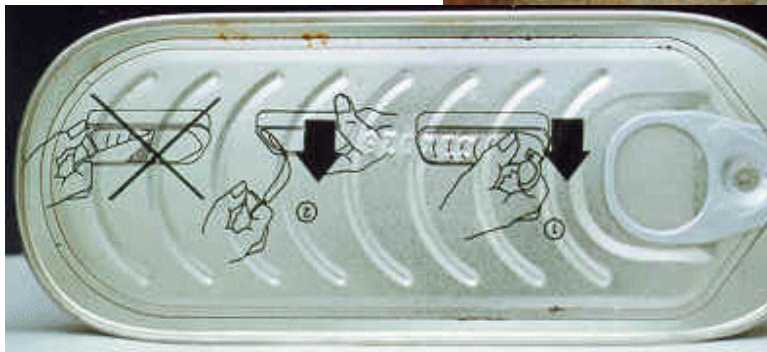
- 1) the corrosion causes pitting; or
 - 2) the corrosion is on any sensitive area of the container such as the scoreline
-

DESCRIPTION:

The deterioration of the metal plate from the inside or the outside of the container as a result of chemical reaction which can lead to penetration of the metal plate. Most commonly seen is external corrosion (rust) due to dampness (see also COATING SKIPS 7.2.2).

COMMON SOURCES:

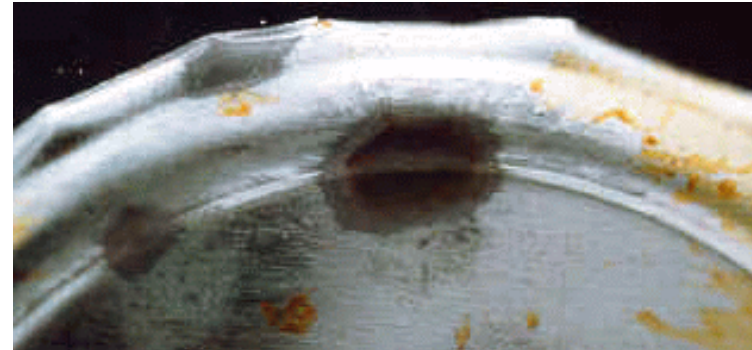
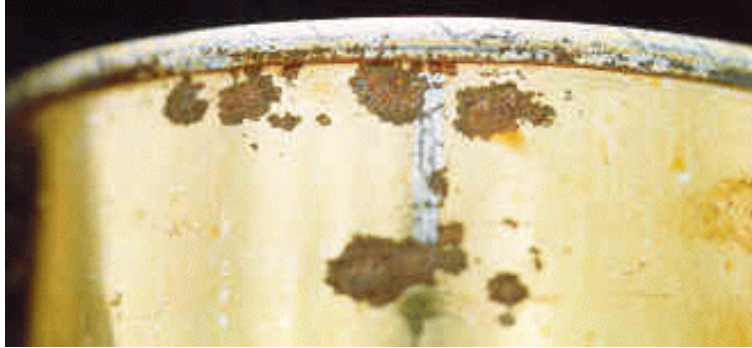
- 1. Wet cans due to either excessive post-process cooling or insufficient tipping time (drainage) following retorting.
 - 2. Improper temperatures and humidity levels in the warehouse.
 - 3. Cans unprotected from weather during transport or storage.
-



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DEFECT: CORROSION





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30/06/93

DEFECT: CRUSHED

CLASSIFICATION:

A crushed can is considered a serious container defect.

DESCRIPTION:

An extreme mechanical deformation of the metal container.

COMMON SOURCES:

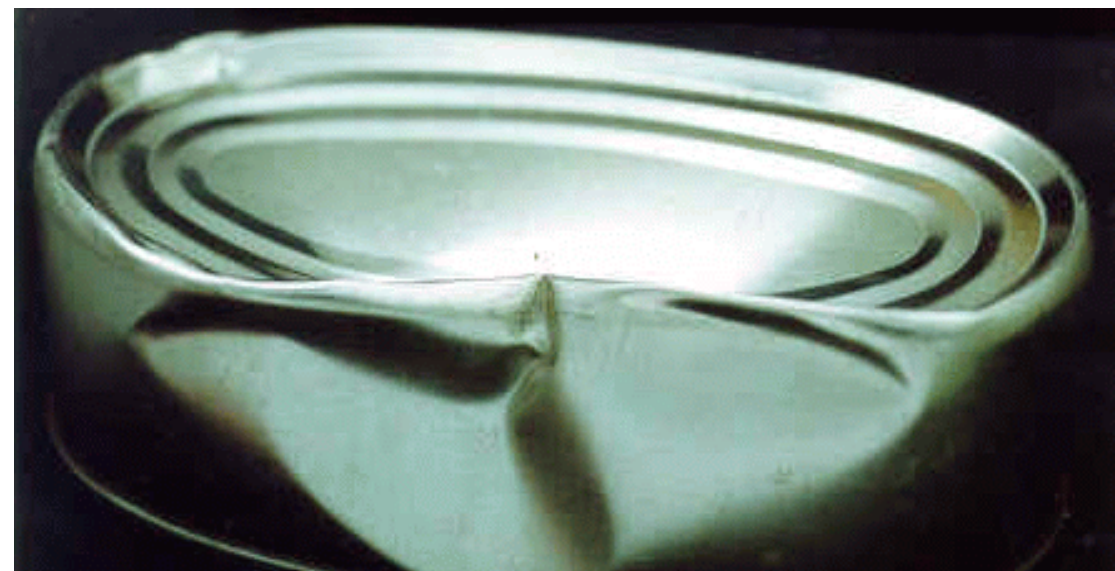
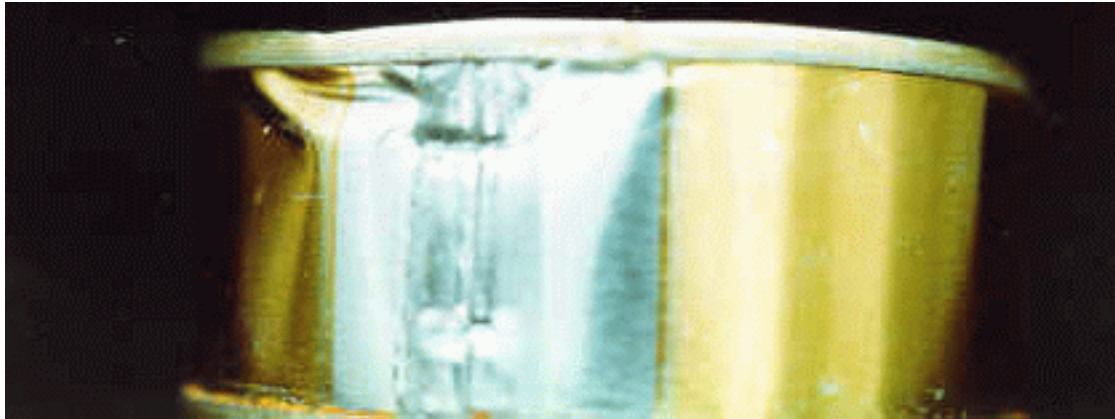
1. Misfeed of the filled can in conveying equipment.
 2. Transit damage.
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DEFECT: CRUSHED



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DEFECT: CUT SEAM

CLASSIFICATION:

A cut seam is considered a serious double seam defect.

DESCRIPTION:

The physical tearing or cutting through of the outer layer of metal plate on the double seam, such that the inner layers of the double seam are exposed and the integrity of the double seam is compromised.

Alternate Terms: Torn Seam, Cable Cut

Sometimes designated: Fractured Seam (see 7.5.7)

COMMON SOURCES:

1. Cans contacting weld beads or rough metal during conveying.
 2. Mishandling of the metal containers either during pre-processing or post-processing.
 3. The action of moving cable on stationary cans.
-



Metal Can Defects

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Amend.no.4

10/03/06

DEFECT: DAMAGE TO SCORELINE/PULL TAB

CLASSIFICATION:

Damage to scoreline and/or pull tab is considered a serious can handling defect when:

- 1) the scoreline is broken at the point of the tab; or
 - 2) the rivet is fractured or broken; or
 - 3) there is any evidence of loss of hermiticity.
-

DESCRIPTION:

A pull tab which has been twisted or distorted out of the horizontal or parallel plane with the can end. The scoreline may be pierced by the point of the tab, possibly resulting in leakage. The pull tab rivet may have been fractured or broken.

COMMON SOURCES:

1. Defective can ends.
 2. Physical abuse.
 3. Embossing on or near the scoreline.
 4. Weak scoreline - exterior rust on scoreline (tin or tin free ends).
 5. Weak scoreline - interior corrosion on the scoreline.
 6. Defective or damaged pull tab (score pierced by the point of the tab).
 7. Weak scoreline - excessive score.
 8. Canning defects - overfilling, double seamer adjustment problems.
-



Metal Can Defects

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15/12/97

DEFECT: DAMAGED COATING

CLASSIFICATION:

Damaged coating is considered a serious material handling defect if metal is scored and the product packed is corrosive.

Damaged coating is considered a minor material handling defect when exposed metal is not susceptible to rust and corrosion.

DESCRIPTION:

Obvious physical damage to either the inside or outside coated surface of the can end or can body which exposes bare metal, such as scratches, rub or scuff marks, essentially cosmetic in nature, but susceptible to corrosion (see CORROSION - 7.7.3).

While fracture of the metal plate is obviously a loss of hermetic seal, the fracture of the coating may or may not result in reaction of the metal with the product or loss of hermetic seal. Where the metal is coated with tin and then overlaid with an organic coating, there is a double system of protection. If the product is very aggressive to tinplate, then the organic coating is very important. If the product is not aggressive to tinplate, then the loss of the organic coating is not important, especially if there is no reduction in expected shelf life of the product.

COMMON SOURCES:

1. Mishandling of the coated metal plate used to manufacture can bodies or ends.
 2. Mishandling of the can bodies or ends following manufacture, i.e., during shipping, storage, processing and subsequent handling.
-



Metal Can Defects

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DEFECT: DAMAGED CURL/FLANGE

CLASSIFICATION:

A damaged end curl is considered a serious handling defect when the end curl interferes with double seam formation.

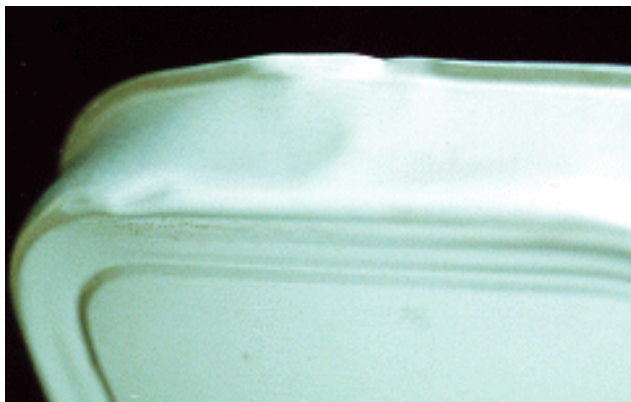
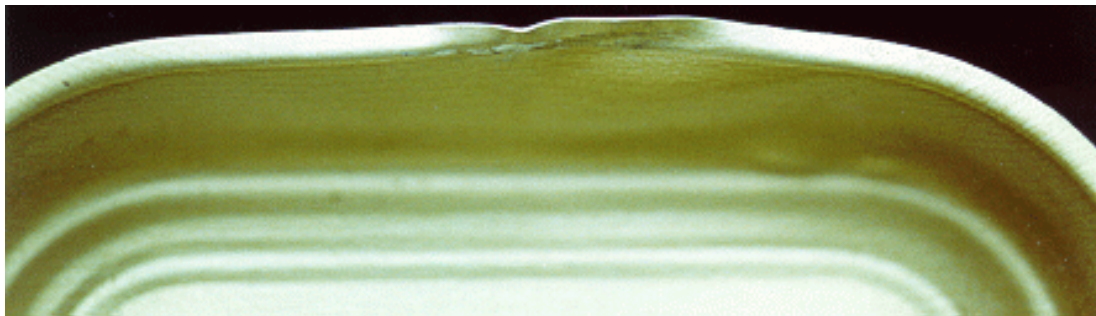
A damaged flange is considered a serious handling defect when damage extends more than 0.8 mm (1/32") from the normal flange level or is of sufficient size to cause a defective double seam.

DESCRIPTION:

A dented, bent or deformed end curl on the can end(s) or flange on can body such that it may cause seaming difficulties such as can end feed jam-ups and defective double seams.

COMMON SOURCES:

1. Mishandling of the can ends or can body during the manufacturing process, in transit handling and in storage, or during use in the cannery.
 2. Machine damage during manufacture.
 3. Scrap-in-die damage or deformation of the metal plate.
-





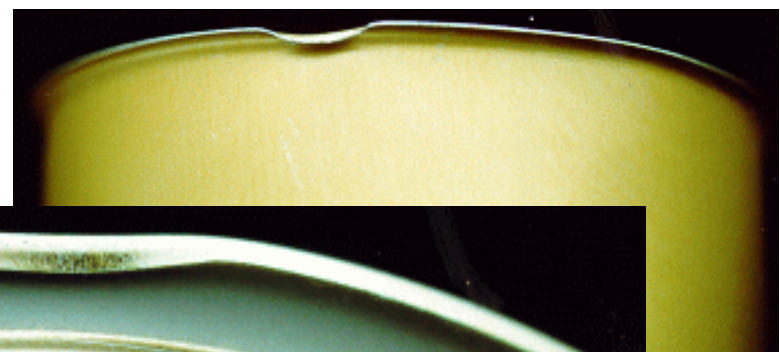
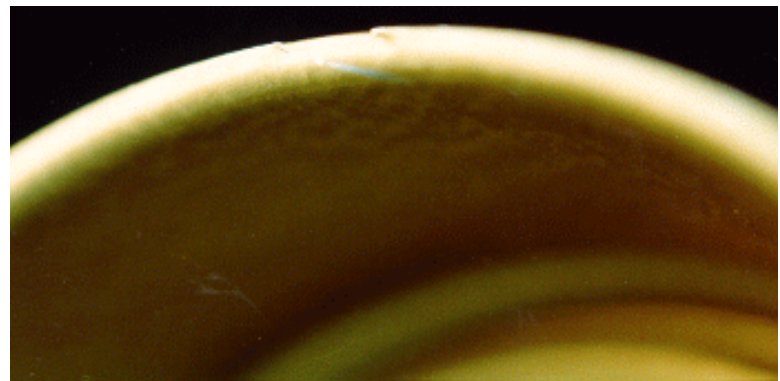
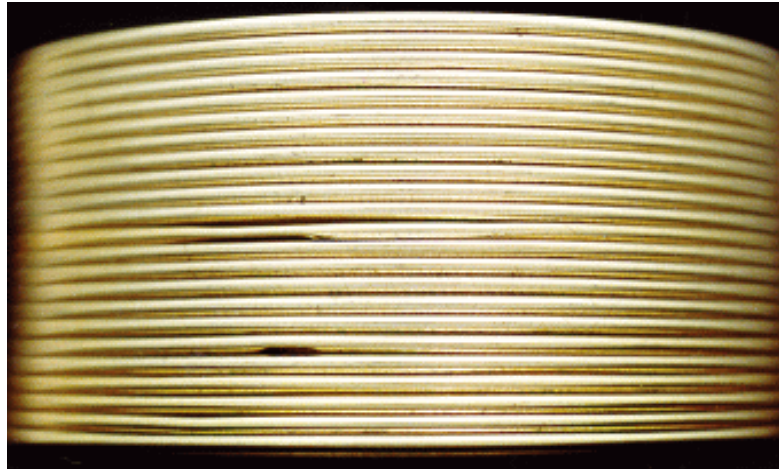
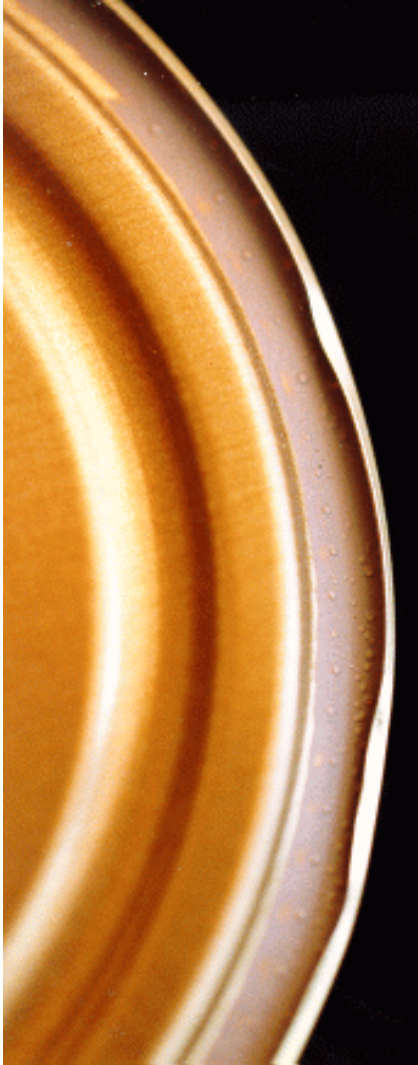
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DEFECT: DAMAGED CURL/FLANGE





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DEFECT: DENT

CLASSIFICATION:

A dent is considered a serious container defect if the can body or end has been sharply distorted such that:

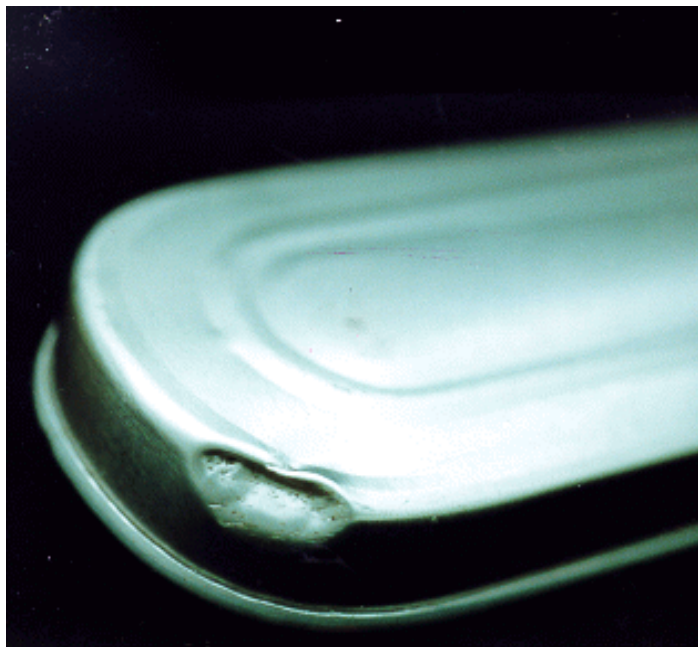
- the containers have bulged one or both ends, other than pressurized containers; or
 - the body dent has pulled on the double seam such that the distortion of the end seam exceeds the countersink depth of that specific can size and results in the double seam dimensions being outside of the can makers published guidelines; or
 - the metal plate has fractured, or the fracture of the coating has exposed metal which may react with a corrosive product; or
 - the container shows evidence of content leakage.
-

DESCRIPTION:

The pronounced mechanical distortion of the metal container resulting in either significant reduction of the internal volume of the container or deformity of the can end or body, the double seam, or the side seam. Dents may crease the metal plate which may adversely affect the internal coating causing susceptibility to corrosion. Dents may distort the double seam or side seam such that vacuum loss may occur.

COMMON SOURCES:

1. Mishandling of the empty or filled cans during conveying, transporting, labelling, or preparing the product for marketing.
-

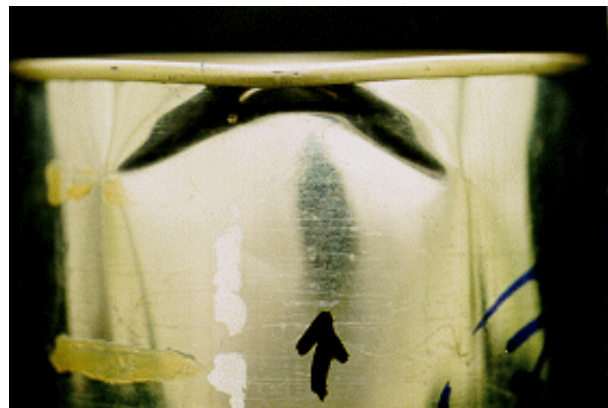


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DEFECT: DENT



Lower limit of a serious body dent. Body dent is sharp and deep and the double seam has been pulled down below the level of the countersink depth of the can.

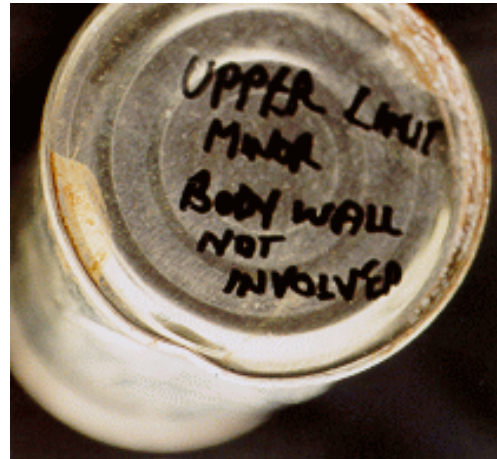
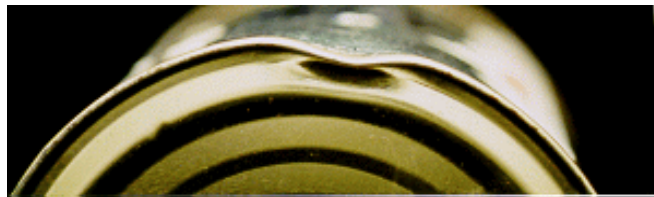
Metal Can Defects

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DEFECT: DENT



Upper limit of a minor body dent. Body dent is sharp and deep. Need to assess the inside coating for possible fractures, if the contents are considered as being a corrosive product which will react with the container, and the double seam has been distorted so that the dimensions are outside of the can maker's guidelines.

Metal Can Defects

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Amend.no.5

15/11/06

DEFECT: DOUBLE SEAM DENT

CLASSIFICATION:

A double seam dent is considered a serious defect when:

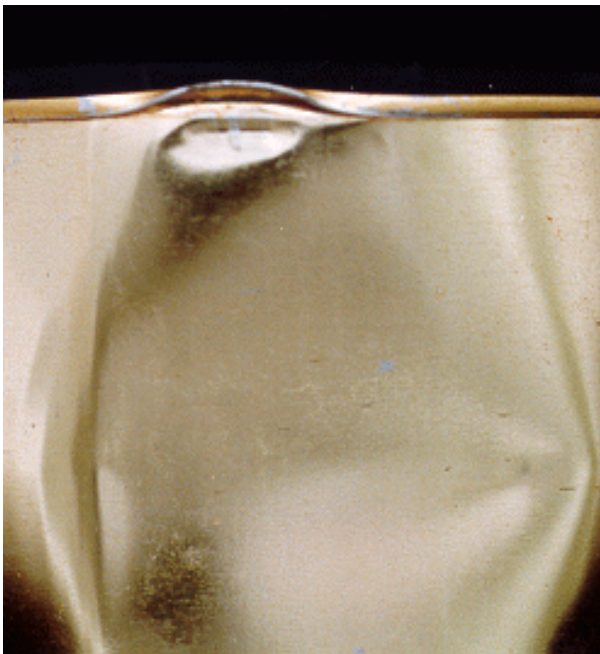
- 1) the dent is sharp (V-shaped) and fails the leak, pressure, vacuum or dye test;
or
 - 2) the containers have bulged one or both ends as a result of the impact to the double seam; or
 - 3) the container shows evidence of content leakage.
-

DESCRIPTION:

The mechanical deformation of the double seam (can rim) of the container, caused by a sharp blow or excessive mechanical force to the double seam. Double seam (rim) dents can adversely affect the integrity of the double seam resulting in a potential for post-process contamination.

COMMON SOURCES:

1. Mishandling of the closed can either during pre-processing or post-processing. Post-processing is anytime after retorting, during labelling, transport or storage.
-



PULLED SEAM



RIM DENT

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DEFECT: FOREIGN CONTAMINATION INSIDE

CLASSIFICATION:

Foreign contamination inside the can is considered a serious defect.

DESCRIPTION:

Any observable amount of oil, grease, glue or dirt which is present on the inside surface of can ends or can bodies.

COMMON SOURCES:

1. Grease or oil dripping from machines.
 2. Excess material being deposited during manufacture.
 3. Contamination during storage or handling of empty cans or can ends.
-



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DEFECT: PUNCTURED

CLASSIFICATION:

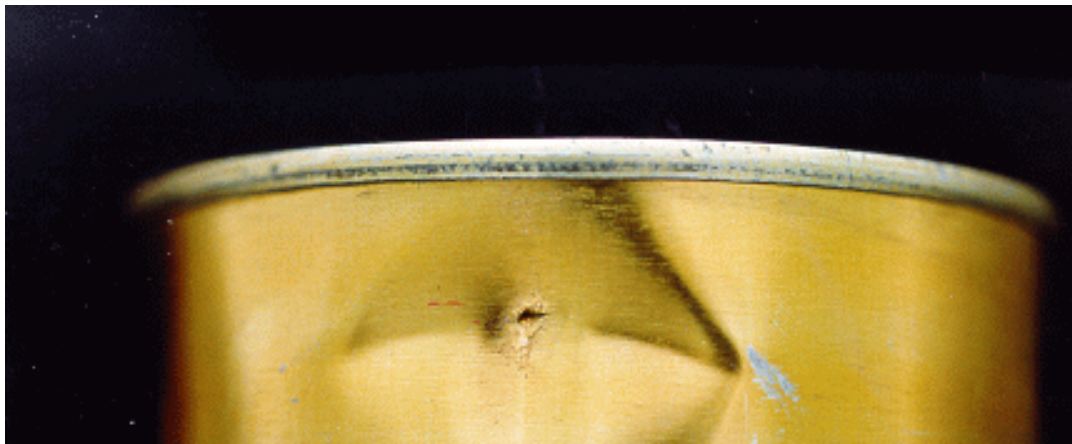
A puncture is considered a serious container defect.

DESCRIPTION:

The complete penetration through the metal plate of the can body or end by a sharp object such that there is loss of hermeticity.

COMMON SOURCES:

1. Punctures from sharp corners of equipment.
 2. Punctures from sharp objects such as staples.
 3. Cuts or gashes from knives or similar tools.
 4. Punctures from forks on lift trucks.
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Metal Can Defects

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DEFECT: SCORED

CLASSIFICATION:

A scored can end or can body is considered a serious can handling defect.

DESCRIPTION:

A sharp linear stressing (deformation) of the metal plate such that either the metal plate is fractured (has failed), or there is potential for failure due to corrosion or stress from normal handling.

COMMON SOURCES:

1. Deep scratching of the metal plate surface on either the inside or the outside of the container.
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