

Perfectly Sealed Closure:



Appearance of the closure:

- Symmetrical and well shaped reform
- Damage free thread start
- Correctly formed thread with sufficient forming depth
- Faultless perforation
- Precise and cleanly made tuck-under

Results:

- Reliable long-term seal
- Closure opens well with correct pilfer proof function
- Closure will reseal smoothly and safely

1. Failure Insufficiently formed thread



Effect:

- Closure cannot be opened
- Closure remains on the bottle
- Risk of leaking product
- Sealing disk/liner is not in the correct position

Possible Causes:

- Roller arms not set to gauge
- Side pressure too low (broken or incorrectly set side pressure spring, or – on pneumatic machines – side pressure gauge faulty or incorrectly set)
- Roller bushings badly worn
- Glass defect; bottle thread out of specification

2. Failure Shaped thread starts too deep



Effect:

- Thread is deformed when closure is resealed by hand
- Insufficient hold for liner when the cap is opened, liner may remain on neck finish

Possible Causes:

- Roller arms not set to gauge. If cut is at start of thread, thread roller is set too high.
- Side pressure is too high (side pressure spring compressed excessively, or – on pneumatic machines – gauge set too high)
- Thread roller is not free to move vertically or too roll
- Thread roller shaft is dirty, probably with particles of broken glass, which have penetrated the bushing
- Glass defect; bottle thread out of specification

3. Failure Split in formed thread



Effect:

- Risk of injury when closure is opened by the customer
- Risk of leaking product if the slit becomes too long
- Visual fault

Possible Causes:

- Roller arms not set to gauge. If cut is at start of thread, thread roller is set too high
- Side pressure is too high (side pressure spring compressed excessively, or – on pneumatic machines – gauge set too high)
- Thread roller is not free to move vertically or to roll
- Thread roller shaft is dirty, probably with particles of broken glass, which have penetrated the bushing
- Glass defect; bottle thread out of specification

4. Failure Tuck under shape too "weak"



Effect:

- Spinning cap. Pilfer proof function will not operate
- Tuck under not formed correctly

Possible Causes:

- Height setup incorrectly on the upper part of the capping machine
- Position of the tuck under roller set too deep, the bushing may not be secured
- Neck finish height on the bottle is on minimum or below
- Angle under the tucking bead is too large or steep

5. Failure Tuck under shape too "sharp"



Effect:

- Spinning Cap. Pilfer proof function will not operate
- Sharp tuck under groove is at a very high position

Possible Causes:

- Setup of upper part of capping machine too high
- Position of tuck under roller set too high
- Neck finish height on the bottle is on tolerance maximum or above
- Reform block is loose

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6. Failure Tuck under not formed sufficiently



Effect:

- Spinning Cap
- Pilfer proof function will not operate

Possible Causes:

- Insufficient lateral pressure on tuck under rollers
- Lateral pressure spring of tuck under roller is worn or broken
- Operating and / or tuck under roller lever is jammed (remove, clean, lubricate)
- Zero-positions of tuck under roller incorrect (gap between rollers too large)
- Zero-positions of tuck under roller incorrect (gap between rollers too large)
- Where there are two tuck under rollers, diameter difference between nose radius and step too small
- Bottle neck diameter directly below the neck finish is too large

7. Failure Insufficiently shaped thread and tuck under



Effect:

- Closure cannot be opened
- Spinning cap. Pilfer proof function will not operate
- Thread is easily over-torqued when closure is resealed by hand
- Risk of leaking product, sealing disk is not held in the proper position

Possible Causes:

- Height of upper part of capping machine set too high (very typical mistake)
- Bottle footprint plate is loose
- Height of bottle is out of specification
- Head load spring is set incorrectly, worn or broken

8. Failure Tuck under damage and tuck under



Effect:

- Closure breaks not at the perforation, but at the tuck under area
- Risk of injury when closure is opened by customer
- Visual mechanical fault

Possible Causes:

- Lateral pressure of tuck under rollers set too high
- Operating and/or tuck under roller lever clamps jammed
- Tuck under roller nose radius is worn or damaged
- Zero-position of tuck under roller is set incorrectly (gap between roller is too small)
- Head speed set too high
- Bottle neck diameter directly below the neck finish is too large, out of specification

9. Failure Too little or no reform depth



Effect:

- Risk of leaking product
- High oxygen transmission rate possible
- Wine could oxidize at a faster rate

Possible Causes:

- Upper part of sealing machine is set too high
- Head load set low (spring wrong, worn or broken)
- Reform block spring is broken and impedes the moveable reform block disk
- Neck finish core diameter is above the maximum of tolerance
- Height of bottle is below the minimum specification

10. Failure Closure not symmetrically shaped, sloping reform and tuck under



Effect:

- Not all perforations open, closure remains on bottle
- Spinning Cap, pilfer proof function not operational
- Risk of leaking product due to irregular sealing disk compression
- High oxygen transmission rate possible
- Wine could oxidize faster than expected

Possible Causes:

- Incorrect or worn central star
- Central star is not aligned with axis of sealing head
- Outside bottle guide too far away from bottle
- Bottle footprint plate of capping machine is worn

11. Failure Perforation breaks during sealing



Effect:

- Pilfer proof function does not work reliable when too many bridges are broken
- Visual mechanical fault

Possible Causes:

- Lateral pressure or tuck under roller pressure set too high
- Position of tuck under rollers is too high
- High level of ovality on neck finish tucking bead
- Neck diameter at cap skirt positions is too small and / or high ovality
- Diameter of neck finish tucking bead too small
- Radius on the tucking bead is too large
- Possibility that the bridges of the closure are too narrow

Measurement equipment for sealing process:



Spring Scale



Reform depth gauge



Torque Tester



Head Load Gauge

	Wine	Sparkling Wine
Liner:	Saranex, Saran / Tin	Compound
Head load:	1600... 1800 N	1800 N
Lateral pressure:	70... 120 N	70... 120 N
Reform depth on cap:	1,4... 1,6mm	2,3... 2,5mm
Thread roller nose radius:	0,75... 0,9mm	0,75... 0,9mm
Tuck under roller nose radius:	0,75... 0,9mm	0,75... 0,9mm
Types of tuck under rollers:	1 x 15... 20° and 1 x 90° with D2 - D1 = 2,5... 2,6mm or rollers 90° with D2 - D1 = 2,6mm	
Open torque:	8... 20inlbs	
Over-torque:	value to over-torque the thread when closure is reseals by hand, at least 2 inlbs higher than the respective open torque average	