DEFECTS IN FLAVOR

Acid Flavors
(Indicated by a sour smell and taste)

CAUSES
Over development of acidity during the ripening process due to:
1. Ripening the milk too much before adding the rennet
2. The use of too much starter
3. Failure to firm the curd sufficiently before draining whey
4. Any condition that cause whey to be retained in the curd or cheese.

PREVENTION
1. Start with less acidity in the milk before adding rennet.
2. Use less starter: 1/2 to 2 percent is sufficient.
3. Add rennet so curds become firm in the whey before desired acidity has developed.

REMEDY
1. Heat the milk not above 84°F.
2. Use extra rennet.
3. Cut the curds into smaller pieces.
4. Heat higher – dependant on acidity development – can be hurried.

Off Flavors
(Flavors that are not clean - rancid, and stinky)

CAUSES
(Undesirable bacteria introduced to the milk.)
1. Unclean/unsterile equipment during milk collection or cheese making.
2. Careless milking
3. Exposure to airborne bacteria
4. Keeping milk at too high a temperature
5. Using bad starters
6. Using impure water for dilutions or washing
7. Using tainted rennet or salt
8. Ripening cheeses above 65°F

PREVENTION
(Use strict cleanliness!)
1. All utensils that come into contact with the milk, processing equipment, water or other container must be clean and sterilized.
2. Milk should not be exposed to an unclean atmosphere at any time.
3. Milk should be cooled to 50°F immediately after being drawn.
4. If any uncertainty exists about the source of milk it should not be used.
5. Only clean sterile starters and other ingredients should be used.
6. Only clean pure water should be used when diluting or washing curds.
REMEDY

1. Firm the curds a little more in the whey by raising temperature.
2. Develop a little more acidity before removing the whey.
3. Mill the curds early and expose to fresh air to allow odors and gases to escape.
4. Increase the amount of salt in the curds in extremely bad cases.
5. Ripe the cheese at low temperatures.

Fruity Flavors
(Flavors that are sweet like pineapple, raspberry and strawberry.)

CAUSES
Bacteria or yeasts carried into the milk by dirt or carrying the milk and whey in the same cans without washing.

PREVENTION
(Use strict cleanliness!)

1. Cans should be thoroughly cleaned and sterilized before reusing.
2. All whey should be pasteurized.
3. Tanks should be scalded twice a week. Steel is better than wood or plastic.
4. Use clean-flavored commercial starters

REMEDY

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2. Develop a little more acidity before removing the whey.
3. Expose to fresh air to allow odors and gases to escape.
4. Increase the amount of salt in the curds in extremely bad cases.
5. Ripe the cheese at low temperatures.

Bitter Flavors
(A bitter taste or weedy odor.)

CAUSES
1. Bacteria and yeast
2. Allowing cows to drink from stagnant pools.
3. Rusted milk cans or other utensils.
4. Using old starters that have developed to much acid.
5. Too little salt in curds.

PREVENTION

1. Milk should be cooled to 50°F immediately after milking.
2. Rusted can or utensils should not be used.
3. Cows/Goats should have only good clean water.
4. Only clean flavored starters should be used.
5. Avoid using to little salt in the curds.
Food Flavors
(Food that cows/goats might eat.)

**CAUSES**
1. Turnips, onions, leeks, garlic, weeds, decayed silage and certain green fodders.
2. Exposing milk where any of these are exposed.
3. Storing milk in cellars where decayed vegetables are present.

**PREVENTION**
1. Foods that impart objectionable flavors to milk should be avoided.
2. Use good commercial starters.
3. Careful and thorough aeration of milk is helpful.

**REMEDY**
1. Heat the curd several degrees higher in the whey.
2. Air the curd well. Especially after milking.
3. Ripen the cheese at low temperatures.

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**Defects in Body and Texture**

**Dry Body**
(To firm, mealy, rubbery or corky)

**CAUSES**
Lack of Moisture or Milk-Fat or both, produced by one or more of the following:
1. Removing part of the fat from the milk.
2. Heating to long.
3. Heating to long.
4. To much stirring at the time of whey removal.
5. Using to much salt.
6. Curing cheese in an environment that is to dry or to hot.
7. "High cooked" cheese is rubbery or corky.
8. Stirring to dry make cheese sandy or mealy.
9. To much salt make cheese salty and dry.

**PREVENTION**
1. All milk fat should be retained as much as possible.
2. Lower temperatures when firming curds will produce better texture.
3. Double check the temperatures on your thermometers.
4. Stir curds as needed and use the proper amount of salt.
**REMEDY**

1. Pile dry curd higher.
2. Keep air moist by placing hot water in the vat.
3. Don’t mill curds to early.
4. For dry curds soak in cold water after milling. Will not keep long.
5. Use less than the normal amount of salt.
6. Wax cheese as soon as possible.
7. Ripen the cheese in a cool room with humidity of at least 80%.

**Acid Body**
(Dry or moist, mealy or sandy)

**CAUSES**

1. Overripe milk.
2. Ripening the milk to much before adding rennet.
3. Too much acidity before the whey is removed.
4. Acid or sour cheese - the curd not firm enough before the acidity develops.
5. Using too much starter.

**PREVENTION**

1. Do not use sour milk or milk more than 0.26 percent acidity.
2. Add rennet giving the curd enough time to firm before to much acidity is produced.
3. Do not use too much starter.
4. Keep the development of acidity under control by controlling the amount of whey in the curd.

**REMEDY**

1. Heat the milk above 84°F.
2. Use extra rennet.
3. Cut curd into smaller pieces.
4. Heat higher, depends on the speed of acid development. This step may be hurried.
5. As soon as possible after heating whey should be drained to the level of the curds. If curds are still to acid adding 102° water to the curds. This may be necessary to do more than once.
6. If after milling the curds are sour in extreme cases washing in pure water at 80°F will help.
7. Use extra salt.

**Loose or Open Texture**
(Texture is full of holes)

**CAUSES**

1. Developing to little acid and retaining to much whey.
2. Pressing at to high a temperature.
3. Lack of pressing.
4. Soaking curd in water after milling.

**PREVENTION**

1. Have at least 0.24 percent acidity in whey running from curd after it’s piled for cheddaring.
2. Cool the curds to 80°F before pressing.
3. Pressing for a continuous 48 hours is better than 24 hours with heavy pressure.
4. Curd should not be soaked in water.
REMEDIY

1. Open-textured cheese can be closed to some degree by pressing again.
2. Ripen at lower temperatures.

Gasy Cheese Texture
(Pinholes, bad flavor, spongy, floating curds)

CAUSES

1. Milk infected with gas producing bacteria.
2. Starters infected with gas producing bacteria.

PREVENTION

1. Gassy milk should not be accepted.
2. Gassy starters should not be excepted.
3. Freeze dried cultures and starters do not generally exhibit this phenomenon.

REMEDIY

If it is known that the milk or curd is gassy:
1. If the milk is gassy use a safe amount of clean commercial starter.
2. Ripen the milk a trifle more before adding rennet.
3. After cutting stir the curd until the whey is at 0.15 percent acidity before heating.
4. Heat slowly - take 30 to 60 minutes.
5. Care should be taken to prevent the curd from getting to firm in the whey before the acid begins to form.
6. A little more acidity should be allowed to develop before removing the whey. About 0.32 percent after all the whey is sufficient.
7. Should curd float, remove the whey to until they do not float.
8. Pile gassy curd before and after milling.
9. After milling curd should be thoroughly stirred and aired before piling. The pressure cases the small pieces to become very thin. After repeating this at intervals of 15 to 20 minutes most gasses should have escaped.
10. The whey running from the curd at this time should show 1.2 percent acidity.
11. Ripen in a cool place.

Greasy Texture
(Greasy surface and mechanical holes)

CAUSES

1. Allowing separation and hardening or drying of cream on milk.
2. Abnormal proportion of fat to casein in milk.
3. Heating milk to high or too long before adding rennet.
4. Handling curd too roughly.
5. Piling curds to much.
6. Maturing curd at high temperature.
7. Using a mill that bruises the curd.
8. Ripening cheese at to high a temperature.
PREVENTION

1. Make up the milk daily or take pains to keep the cream stirred in.
2. Cut and stir curd carefully while soft.
3. Do not pile the curd more than two layer deep.
4. Do not heat the milk to high and check accuracy of thermometers.
5. Use a mill that cuts curd without squeezing the fat from it.
6. Apply salt soon after milling and mature curd after salting.
7. Ripen the cheese in a cool room.

REMEDY

1. Rinse curd with water at 90°F before salting, then use a trifle more salt.
2. Cool the curd before putting in press.
3. Use large clean press clothes to insure good rind.
4. Use sufficient hot water at the time of dressing the cheese.

Fisheye Texture or Yeasty Cheese
(Fisheye shaped holes surrounded by small holes and white rings - usually a bitter flavor)

In colored cheese it usually looks badly mottled as the cheese ages and is most noticeable near the rind. As the acidity increases the curd tend to become soft and mushy. During cheddaring you may see shiny openings resembling gas holes.

CAUSES

Yeast gain entrance through hay dust, leaves of trees, unclean cellars and in whey tanks.

1. In factories the whey tank is a big source of contamination.
2. Allowing milk to be exposed to the dust of stables during milking
3. Keeping milk to warm after placing it in cans.

PREVENTION

1. Milk should be immediately chilled to 50°F after milking.
2. Whey-tanks should be cleaned and scalded at least twice a week.
3. All whey should be pasteurized.
4. All cans and utensils should be washed and scalded.

REMEDY

1. Use a good commercial starter.
2. Add rennet so curds become firm in the whey before desired acidity has developed.
3. Use a higher temperature for heating – about 2°F higher than normal.
4. Remove the whey with as little acidity as necessary to mature properly. 0.24 percent after the whey has been removed and the curd packed should be sufficient.
5. Stir the curd well at the time of removing the whey.
6. Do not pile curd to early and air well after.
7. Should the curd become mushy after milling apply ½ the salt then in an hour or after the curds have shrunken and the hole close add the remaining salt.
8. Curing at low temperature help to check the slit formation and bitter flavor.
DEFECTS IN COLOR

Pale or Acid-Cut Color
(Lighter color in portions of the cheese)

CAUSES
1. The development of too much acid which bleaches the curd.
2. Failure to firm the curd in the whey early enough.
3. Using large amount of starter.

PREVENTION
1. Have the curd firmed in the whey before the acidity has developed to more than 0.18 percent.
2. Cheese should be colored to suit the market for which it is intended.

REMEDIY
1. The best place and time to produce bright, even color in the curd is in the whey, while the whey is draining. From the time the whey has reached the level of the curd to the time is completely drained the curd should be well stirred. At this point the color will change rapidly and can be clearly seen due to breaking down of the film of moisture which surrounds the curds.
2. Allow the curds to stand some time after the salting before putting into the press.

Mottled Color
(Uneven color)

CAUSES
1. An uneven development of acid and moisture in the cheese.
2. Uneven cutting leading to uneven contraction of the curd when heated in the whey.
3. Neglecting to strain the starter when lumpy
4. Adding starter after adding cheese color.
5. Uneven piling and maturing of the curd.
6. Use of poor cheese color.
7. Mixing the curd from different vats.
8. Lumpy condition of the curd when removing whey or when salt is added.
9. Adding old curd to fresh curd without proper precautions.
10. Yeasts. When present mottling increases with age.

PREVENTION
1. Uniformly cut, heat and stir curds.
2. Each piece of curd should be separate from the next when heating.
3. The starter should always be strained.
4. Starter should be added before the cheese color.
5. Curds from different vats should not be mixed.
6. Old curd should be placed in the vat about 15 minutes before removing the whey.
7. Curd should always be firmed in the whey before to much acid is developed.
REMEDY

When the curd is badly mottled, there is no remedy that will make it uniform. Prevention is the best remedy.

Seamy Color
(The outlines of each curd can be seen)

1. Greasy curds preventing absorption of salt.
2. Impure salt.

PREVENTION

1. If the curds are very greasy, they should be rinsed off with water at 90°F just before salting.
2. Only high grade salt should be used.

Rusty Spots
(Red spots resembling rust located in pockets of fat where two piece of curd come together)

1. *Bacillus ru lensis*, gaining entrance into the milk or curd.
2. Unsanitary buildings and surroundings

PREVENTION

1. Keep everything used absolutely clean.
2. Do not allow floors to leak. Cement is the most sanitary.
3. Keep drain to drain pipes clean.
4. Use screen doors and windows during fly time.

REMEDIY

1. The only way to get rid of this problem to clean thoroughly and disinfect.
2. The starter if used should be renewed.

DEFECTS IN FINISH

This includes anything that detracts from the appearance of the cheese.
Cracked Rinds
(Openings in the sides or ends of the cheese.)

**CAUSES**
1. To much acid
2. Greasy curd.
4. Lack of pressing.
5. Wrinkled bandages.
6. To dry an atmosphere in curing area.

**PREVENTION**
1. Avoid excess acid in making the cheese.
2. Rinse greasy curds with hot water at 90°F before salting.
3. Softened cloths by soaking in a mild solution of sulphuric acid.
4. Press cheese longer before dressing and have bandages well pulled up.
5. The curing room should be at 80% humidity.

**REMEDY**
1. Press the cheese again after washing in warm water.
2. If that fails wax the cheese.

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**Moldy Surfaces**

**CAUSES**
1. Too much moisture in the air
2. Too high a temperature.
3. Insufficient circulation of air.
4. Lack of cleanliness in the curing area.

**PREVENTION**
1. Curing room should be equipped with temperature and moisture controller.
2. Good air circulation should be provided.
3. Curing areas should be kept clean.

**REMEDY**
1. White wash walls.