

LPT-610

UNIT 1

12-11-2020

DEFECTS IN WHOLE AND SKIM MILK POWDER

**By: Dr. Gargi Mahapatra,
Assistant Professor cum Junior Scientist
Department of Livestock Products Technology
Bihar Veterinary College
Bihar Animal Sciences University, Patna-14.**

REASONS

*LOW QUALITY OF MILK.

*FAULTY MANUFACTURING TECHNIQUE.

DEFECTS

* FLAVOR.

STALE/ OXIDIZED/ RANCID/ BURNT

* TEXTURE

LUMPY/ CAKED

* COLOR AND APPEARANCE

BROWN OR DARK/ BURNT/ LACK OF
UNIFORMITY IN APPEARANCE



FLAVOR (STALE/OLD)

CAUSES

- ❖ **PROLONGED STORAGE**
- ❖ **EXCESSIVELY HIGH PRE-HEATING TEMPERATURES**
- ❖ **STORAGE AT HIGH TEMPERATURE.**
- ❖ **DELAYED REMOVAL OF PRODUCT FROM DRYING CHAMBER**
- ❖ **HIGH MOISTURE CONTENT DURING STORAGE**

PREVENTION

- ❖ **SHORT STORAGE PERIODS AT LOW TEMPERATURES (24 °C).**
- ❖ **OPTIMUM PRE-HEATING TEMPERATURE**
- ❖ **PROMPT COOLING & REMOVAL OF DRY PRODUCT.**
- ❖ **OPTIMUM MOISTURE CONTENT**

TEXT FLAVOR (OXIDISED/TALLOWY)

CAUSES

- STORAGE AT HIGH TEMPERATURES.
- TRANSPARENT PACKAGING MATERIALS AND THE ACTION OF SUNLIGHT
- METALLIC CONTAMINATION.
- EXCESSIVELY HIGH PRE-HEATING TEMPERATURES
- DELAY IN COOLING AND REMOVAL OF PRODUCT FROM DRYING CHAMBER
- HIGHER OXYGEN CONTENT IN HEAD SPACE.

PREVENTION

- SHORT STORAGE PERIODS AT LOW TEMPERATURES (24 °C).
- USE OF OPAQUE PACKAGING MATERIALS.
- USE OF STAINLESS STEEL AND ALLUMINIUM ALLOY ON CONTACT SURFACES
- OPTIMUM PRE-HEATING TEMPERATURE
- PROMPT COOLING & REMOVAL OF DRY PRODUCT.
- VACUUM AND GAS PACKAGING.
- USE OF ANTI-OXIDANTS.





FLAVOR- RANCID

(INACTIVATION OF LIPASE)

Proper pre-heating of milk before processing.

FLAVOR (BURNT)

Reasons :

- 1.Excessive high temperature of drying.**
- 2.Pits on drum surface.**
- 3.Dull scraper knife.**





LUMPINESS AND CAKING

DEFECTS OF THE

BODY & TEXTURE



LUMP:

- ▶ **Insufficient Drying.**
- ▶ **Absorption of moisture from atmosphere**
- ▶ **Drippage from Pressure Spray Nozzle.**



CAKING:

- ▶ **Absorption of moisture from atmosphere**



*BROWN/DARK

*SCORCHED/BURNT

*LACK OF UNIFORMITY IN APPEARANCE

DEFECTS IN COLOUR AND APPEARANCE



BROWN/DARK COLOUR

CAUSES

- **LONG STORAGE**
- **STORAGE AT HIGH TEMPERATURE.**
- **DELAYED COOLING AND REMOVAL OF PRODUCT FROM DRYING CHAMBER**
- **HIGH MOISTURE CONTENT DURING STORAGE**

PREVENTION

- **SHORT STORAGE PERIODS AT LOW TEMPERATURES (24 °C).**
- **PROMPT COOLING & REMOVAL OF DRY PRODUCT.**
- **OPTIMUM MOISTURE CONTENT**

BURN/SCHORCHED

REASONS :

1. Excessive high temperature of drying.
2. Pits on drum surface.
3. Dull scraper knife.





LACK OF UNIFORMITY IN APPEARANCE

- ▶ **Partial scorching during manufacturing**
- ▶ **Partial discolouration after package.**

THANK YOU

DR. GARGI MAHAPATRA