

# Active Ingredients in Teat Dips- The Good, The Bad and the Ugly

Jessica Belsito

IBA, Inc



**I'M AN EXPERT**



**IN MY FIELD**

# Teat Dips





# Components of Dip

- Germicide (active ingredient)
- Complexing agents
- Skin conditioners
- Wetting agents and Surfactants
- Water
- Colorants
- Thickeners
- pH buffers
- Stabilizers



# TEAT DIP VERSUS UDDER WASH

- Teat dips are (usually) ready to use (RTU)
- Dipped, sprayed or foamed
- Pre or Post milking
  
- Udder Washes need to be diluted
- Usually have an acid or quaternary ammonia
- Pre milking only
- Robots?



NDC 29983-0088-8



**NPE  
FREE**

# EPIC

**NPE  
FREE**

## SANITIZING TEAT DIP

Contains Two Powerful And Time Tested Germicides For Quick And Effective Kill Of Contagious And Environmental Bacteria  
A Revolutionary Advance In Teat Dip Technology By IBA That Allows The Combination Of Chlorhexidine  
And Iodine To Remain Stable For The Shelf Life Of The Product

**ESPECIALLY FORMULATED FOR DAIRIES WHERE NPE FREE PRODUCTS ARE PREFERRED OR REQUIRED**

**ACTIVE INGREDIENTS:**

Chlorhexidine Gluconate..... 0.50%  
Iodine..... 0.50%

(Provides .5% Available Iodine As Used)

**INERT INGREDIENTS:**

Glycerin (As A Humectant And Skin Conditioner)..... 2.00%  
Other Inerts  
(Includes Buffering Agents, Stabilizing Agents And Surfactants).... 97.00%  
**TOTAL..... 100.00%**

This product contains highly effective levels of free iodine for fast kill of mastitis causing organisms.

**GENERAL RECOMMENDATIONS**

1. Use teat dip applicators made of plastic or other non-corrosive materials. Do not use cups made of aluminum.
2. If solution in the teat dip cup becomes dirty and/or noticeably loses color, discard remaining contents and refill cup with fresh teat dip.
3. Do not use this product for cleaning or sanitizing equipment.
4. Wash teat dip cups after each milking.

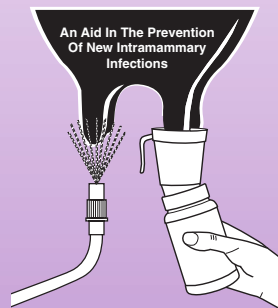
**FIRST AID PROCEDURES**

**EYE CONTACT:** IMMEDIATELY FLUSH EYE WITH LARGE AMOUNTS OF FRESH, TEPID WATER FOR 15 MINUTES. HOLD EYELID OPEN TO ENSURE COMPLETE IRRIGATION OF EYE AND LID TISSUES. TILT HEAD TO THE SIDE AND IRRIGATE THE EYE FROM THE BRIDGE OF THE NOSE TO THE OUTSIDE OF THE FACE.

**SKIN CONTACT:** FOR READY-TO-USE PRODUCTS, WASH ANY SENSITIVE AREAS.

**INGESTION:** DO NOT INDUCE VOMITING. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. DRINK LARGE AMOUNTS OF WATER. IF VOMITING OCCURS, KEEP AIRWAYS OPEN. KEEP HEAD LOWER THAN THE HIPS TO PREVENT ASPIRATION INTO THE LUNGS.

**ALWAYS SEEK IMMEDIATE MEDICAL ATTENTION  
FOR MEDICAL EMERGENCIES CALL 1-800-424-9300**



**U.S. Patent Numbers  
9,913,859 and 11,766,452**

**RECOMMENDED PROCEDURES  
FOR TEAT SANITATION**

**A. PRE-MILKING (PRE-DIPPING)**

1. Remove visible soils from the teats.
2. Observe foremilk by stripping two or three streams of milk into a strip cup.
3. Dip, foam or spray the cow's teats full length with EPIC NPE FREE TEAT DIP.
4. Wait approximately 30 seconds.
5. Remove all teat dip by thoroughly drying the teats, teat orifices and udder (if foaming or spraying) with a clean, single service paper towel(s) to avoid contamination of milk.
6. Attach milking unit.

**B. POST-MILKING (POST-DIPPING)**

Immediately after milking, dip or spray all teats full length with EPIC NPE FREE TEAT DIP. **Ensure good coverage of all sides of the teats and teat orifices.**

**CAUTION: KEEP OUT OF REACH OF CHILDREN.  
AVOID CONTACT WITH FOOD. DO NOT TAKE INTERNALLY.**

**WARNING**

DO NOT DILUTE THIS PRODUCT.

DO NOT RETURN TEAT DIP LEFT IN THE TEAT DIPPER TO STORAGE CONTAINER.

ENSURE THAT DIPPED TEATS ARE DRY BEFORE EXPOSING THE ANIMALS TO WEATHER CONDITIONS WHICH MAY CAUSE DAMAGE TO THE TEATS.  
PROTECT THIS PRODUCT FROM FREEZING.

### A PART OF THE COMPLETE IBA SANITATION PROGRAM

EXP. DATE:                      LOT NO.:                      NET CONTENTS: 55 GALLONS (208.175 LITERS)      IBA STOCK # 161214      1223E

MANUFACTURED EXCLUSIVELY FOR IBA INC., SANITATION DIVISION, 103 GILMORE DRIVE, SUTTON, MA 01590



**NPE  
FREE**

# FS-102

**NPE  
FREE**

## SANITIZING UDDER WASH

*Developed Especially For Use On Organic Dairy Farms Or Where  
An NPE FREE Udder Wash Is Preferred Or Required*

### WARNING

IBA'S FS-102 IS A CONCENTRATED PRODUCT.  
IT MUST BE USED ACCORDING TO THE DILUTIONS DESCRIBED  
IN THE TABLE BELOW AND IN THE DIRECTIONS.

#### ACTIVE INGREDIENTS:

Iodine..... 1.75%  
Citric Acid ..... 15.00%

INERT INGREDIENTS:..... 83.25%

(Includes Cleansing Agents, Iodine Stabilizers And Surfactants)

TOTAL: ..... 100.00%

#### DIRECTIONS FOR UDDER WASHING:

1. Prepare the udder wash solution in a plastic pail. Do not use aluminum, tin or galvanized pails.
2. Mix 1/2 ounce of IBA FS-102 with 2 1/2 gallons of warm water (110°-115°F).
3. Observe foremilk by stripping two or three streams of milk into a strip cup.
4. As a pre-milking application, thoroughly wash and massage the teats and teat ends using a clean, single service paper towel which has been soaked in this solution.
5. Use a clean towel for each cow.
6. Use a new paper towel to thoroughly clean and dry the teats before milking machine attachment.
7. Discard udder washing solution when it noticeably loses color or becomes visibly dirty.
8. Make a fresh solution before each milking.

USE DILUTION	FS-102	WATER	TITRATABLE IODINE
TABLE:	1 ounce	2 1/2 gallons	50 ppm
	1/2 ounce	2 1/2 gallons	25 ppm

CONTAINS CITRIC ACID



### DANGER



Concentrate May Cause Severe Skin Burns And Eye Damage.

Harmful If Swallowed.

Concentrate May Be Corrosive To Metals.

Keep out of reach of children. Read label before use. Do not breath fumes/gas/mist/vapors or spray. Do not get in eyes, on skin, or on clothing. Wear rubber gloves, chemical goggles, face shield and rubber apron. Wash hands thoroughly after handling. Take any precaution to avoid mixing with chlorinated products.

**IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing for 15 minutes. Get immediate medical advice/attention.

**IF SWALLOWED:** Rinse mouth. Do not induce vomiting. Get immediate medical advice/attention.

**IF ON SKIN:** Immediately remove all contaminated clothing and wash before reuse. Wash skin with plenty of water for 15 minutes. If skin irritation occurs, get medical advice/attention.

**IF INHALED:** If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing. If experiencing respiratory symptoms, get medical advice/attention immediately.

**MEDICAL AND TRANSPORTATION EMERGENCIES  
CONTACT CHEMTREC 1-800-424-9300**

Store locked up. Dispose of contents/container in accordance with local, state and federal regulations.

## A PART OF THE COMPLETE IBA SANITATION PROGRAM

UN3265, Corrosive liquid, acidic, organic,  
n.o.s. (Citric acid) 8, PG III

MFG. DATE:

LOT NO.:

NET CONTENTS:

1217EW



# Germicides

- Iodine
- Chlorhexidine
- Acidified Sodium Chlorite (ASC) – Chlorine Dioxide
- Hydrogen Peroxide
- Organic Acids
  - DDBSA
  - Salicylic Acid
  - Capric Acid
  - Caprylic Acid
  - Heptanoic Acid
  - Lactic Acid
  - Glycolic acid
  - Bronopol (Organic Compound)



# Iodine

- Long history as a dip
- Most tested germicide
- Broad spectrum
  - Bacteria
  - Fungi
  - Virus
  - Spores
- Oxidizer
- Available in a wide range of concentrations
- Can be irritating to the skin



# Iodine

- Elemental iodine is a crystal and poisonous
- Refined into prills
- Dissolved in water using a water-soluble detergent
- Blend with water and other detergents or solubilizing chemicals to form a stable aqueous solution
- Iodate
- pH buffers, stabilizers, thickening agents



# Iodine



# Iodine





**IODINE** Production Processes and Facilities are Certified with International Quality Norms  
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THE WORLDWIDE BUSINESS FORMULA

**SQM**  
Solutions for human progress

**Iodine Prilled**

Iodine  
USP/ACS/Eur. Ph.  
is 99,8%  
Prilled

Net weight  
**50 kg**  
110 lb

Country of Origin: Chile

Umbrella symbol  
Two upward arrows symbol  
Sun with lightning bolt symbol  
**6**  
Recycling symbol

Produced by  
**SQM S.A.**  
Los Millores 4200,  
Las Condes Santiago, Chile  
56 21 2425 2000

[www.sqm.com](http://www.sqm.com)

Hazard diamond with skull and crossbones and number 6

**IODINE**  
**UN 3493**  
YO 20

**IODINE** Production Processes and Facilities are Certified with International Quality Norms  
**IODINE** Production Processes and Facilities are Certified with International Quality Norms

**SPANISH** Información de seguridad...  
**ENGLISH** Safety information...  
**FRANCAIS** Informations de sécurité...  
**PORTUGUES** Informações de segurança...  
**ITALIANO** Informazioni di sicurezza...  
**GERMAN** Sicherheitsinformationen...  
**RUSSIAN** Информация о безопасности...  
**CHINESE** 安全信息...  
**JAPANESE** 安全情報...  
**KOREAN** 안전정보...  
**VIETNAMESE** Thông tin an toàn...  
**INDONESIAN** Informasi keselamatan...  
**THAI** ข้อมูลความปลอดภัย...  
**VIETNAMESE** Thông tin an toàn...  
**INDONESIAN** Informasi keselamatan...  
**THAI** ข้อมูลความปลอดภัย...

Hazard symbols: skull and crossbones, exclamation mark

1 1 4 2 5

# Iodine



# Iodine – How Does it Work?

- Oxidizer
- Rapidly penetrates the cell wall
- Oxidizes cell contents (steals electrons)
- Causes denaturation and deactivation





# Acidified Sodium Chlorite/Chlorine Dioxide

- Mix sodium chlorite (base) and an acid (activator)
- ClO<sub>2</sub> is a Gas
- ClO<sub>2</sub> gasses off – definitive shelf life
- Pay attention to the label for instructions!
- Milker error when mixing
- Pumps



# Acidified Sodium Chlorite/Chlorine Dioxide

- Oxidizer
- Penetrates the cell wall and reacts with amino acids in the cell
- Fast, broad spectrum kill
- PPM is important



# Hydrogen Peroxide

- Cost effective
- Broad spectrum
- Oxidizer
- Fast acting
- Sensitive to sunlight and extreme temperatures
- Shelf life not as long as some other germicides



# Chlorhexidine

- Must be attached to a salt molecule to make it water soluble
- Chlorhexidine acetate or chlorhexidine digluconate
- Also compounded with detergents, emollients, pH buffers, dyes and thickening agents



# Chlorhexidine

- Fairly broad spectrum
- Not as effective against Pseudomonas, Serratia
- Works more slowly than iodine
- Destabilizes the cell wall and interferes with osmosis



# Chlorhexidine

- 0.5%-0.55%
- Non-irritating
- Residual activity
- “Cow pox”
- Culture every batch



# Powdered Products

- Chlorhexidine
- Cold weather
- Coverage not as good
- Dry



# Organic Acids

- Salicylic acid
- Capric acid
- Caprylic acid
- Heptanoic acid
- Lactic acid
- Glycolic Acid
- DDBSA (dodecylbenzene sulfonic acid)
- Disrupt cell membranes
- Low pH





# Effects of Teat Dipping on Intramammary Infections by *Staphylococci* other than *Staphylococcus aureus*<sup>1</sup>

J. S. HOGAN,<sup>2</sup> D. G. WHITE,<sup>3</sup> and J. W. PANKEY  
Animal Health Section  
Department of Animal Sciences  
The University of Vermont  
Burlington 05405

## ABSTRACT

Effects on intramammary infections in herds 1) either not teat dipping or post-milking teat dipping with either 2) linear dodecyl benzene sulfonic acid, 3) chlorhexidine, or 4) iodophor containing products were determined.

Duplicate quarter foremilk samples were collected once from all lactating cows in 16 herds, four for each practice. Mean percentage of quarters infected with *Staphylococcus* species other than *Staph. aureus* was 11.0 in herds not teat dipping and 7.2 in herds teat dipping. Prevalence of *Staphylococcus* species intramammary infections in herds teat dipping with linear dodecyl benzene sulfonic acid was comparable to herds not teat dipping and greater than in herds using chlorhexidine and iodophor. The predominant *Staphylococcus* species in herds not teat dipping was *Staph. epidermidis* (37.1%). *Staphylococcus byicus* constituted 48.5% of total *Staphylococcus* species intramammary infections in herds teat dipping and 12.4% in herds not teat dipping. Differences were not observed among SCC for quarters infected with different *Staphylococcus* species. Application of germicidal teat dips appeared to have selectively altered both

prevalence and distribution of *Staphylococcus* species intramammary infections.

## INTRODUCTION

*Staphylococcus* sp. other than *Staph. aureus* are the bacterial group most frequently isolated from teat skin (9, 24) and mammary secretions of lactating cows (3, 5, 22), dry cows (17, 23), and primigravid heifers (2, 3, 16). This bacterial group has been described as minor pathogens or commensals of the bovine mammary gland, although *Staphylococcus* sp. intramammary infections (IMI) were associated with increased SCC and occasionally with clinical mastitis (6, 25). Despite the common isolation of these species from bovine mammary gland secretions, little is known about the epidemiology of *Staphylococcus* sp. IMI.

Discovery of new *Staphylococcus* sp. and redefinition of existing species in the last decade (13) has accelerated interest in the role of *Staphylococcus* sp. as bovine mammary gland microflora. Prevalence of IMI caused by specific species of staphylococci differed among herds (11). Distribution of *Staphylococcus* sp. appeared to differ for udder skin, teat skin, teat canals, and mammary secretions (1, 7). Harmon and Langlois (11) suggested that teat dipping altered staphylococcal populations on the teat end in addition to decreasing numbers of bacteria.

Effects of various hygiene management practices on distribution of *Staphylococcus* sp. IMI among dairy herds has not been determined. The purpose of this survey was to determine effects of postmilking teat antiseptics on distribution of *Staphylococcus* sp. IMI.

## MATERIALS AND METHODS

### Survey Herds

Sixteen Vermont dairy herds were included in this survey. Four treatment groups, each

Received September 19, 1986.

Accepted December 26, 1986.

<sup>1</sup>Research supported by the Vermont Agricultural Experiment Station, University of Vermont, Burlington (State Project 950), and by the G. H. Walker Research Grant.

<sup>2</sup>Present address: Department of Dairy Science, Ohio Agricultural Research and Development Center, The Ohio State University, Wooster 44691.

<sup>3</sup>Present address: Department of Animal Sciences, University of Kentucky, Lexington 40546.

# Organic Acids

- Usually used in combination with another germicide or organic acid
  - Iodine and DDBSA
  - ASC and lactic acid
- There are exceptions



# Other Germicides

- Bronopol
  - Synthetic compound often used as a preservative
  - Slows bacteria growth
- Nisin
  - Naturally derived peptide
  - Mastitis tube
  - Why isn't it a good choice?
- Quaternary Ammonia



# Maybe not the best...

- Sodium Hypochlorite
  - Violates federal regulations
  - Slippery
- Organic acids as stand alone germicides
  - DDBSA
  - Lactic acid
  - Heptanoic acid
  - Salicylic acid, etc.

# Other Germicides

- Hypochlorous acid/electrolyzed water generators
- Ozone generators



# Combination Products

- Hydrogen Peroxide and Lactic Acid
- ASC and Lactic Acid
- Iodine and DDBSA
- Iodine and Chlorhexidine
- Multiple Organic Acids



# Questions?



# Complexing Agents

- What an active germicide is attached to to make it soluble in water (iodine, chlorhexidine)
- Just as important as the germicide
- Can be surfactants also
- NPEs, LAEs and other proprietary ingredients





# Skin Conditioners

- Emollients
  - Softening agent
- Humectants
  - Draw moisture in
- Superfating agents
  - Can replace lipids (fats) in the skin that were removed by detergents
  - Fat helps keep skin smooth and provides a barrier against bacteria
- Exfolation
  - Sloughing off of dead skin cells



# Skin Conditioners

- Glycerin
  - Effective, available, used to be cheap
  - Superfating agent, emollient and humectant
- Aloe
  - Soothing
  - Emollient and humectant
  - expensive



# Skin Conditioners

- Propylene Glycol
  - Emollient and humectant
  - Common in cold weather dips
  - Resists freezing and keeps liquid less viscous
- Polyethylene glycol and Sorbitol
  - Emollients and humectants
- Fatty acid esters
  - Emollients and superfatting agents
  - Lanolin is an example



# Skin Conditioners

- Lactic Acid
  - Popular for exfoliation
  - Also can be used as a germicide
  - Read labels carefully!



# Buffers

- pH buffering
- pH that is too acid or basic can damage the teats
- pH is important to maintain germicidal activity
- Iodine pH 3.5-5.5
- Cow's teat is neutral pH 7
- Organic acids or salts of those acids
  - Citric acid, lactic acid, acetic acid



# Surfactants

- **Surfactants** are compounds that lower the surface tension between two liquids or between a liquid and a solid. Surfactants may act as detergents, wetting agents, emulsifiers, foaming agents and dispersants. Allows the active ingredients to have greater contact with the teat skin
  - Increase the teat cleaning ability of the dip
  - Help remove soil from the teat
- Solubilize and stabilize the ingredients in the dip
- NPEs



# Surfactants

- Responsible for foam
- Many different kinds of surfactants
- Common surfactants are soaps and ethoxylated alcohols



# Wetting Agents

- Make water wetter
- Reduces surface tension
- Wetting agents are a type of surfactant





# WATER



# WATER!

- CLEAN WATER IS A MUST
- Water pH is important
- Common things found in water can bind up active ingredients in the dip (iron for example)
- Bacteria in water can contaminate the dip
- Water at our plant is tested for hardness daily
- And alkalinity
- Cultured regularly



# What else is in the dip?

- Thickening agents
  - Common in post dips
  - Gums for barrier dips
- Dyes
  - Sometimes added to dip so one can see the cow has been dipped appropriately
  - Use of dyes in iodine is discouraged by the FDA since dye can result in false readings when testing the level of iodine in the product



# Speaking of the FDA....

- Teat dips are classified as drugs!
- Regulated by the FDA
- Should be registered with the FDA
- Should have NDC numbers (National Drug Code)



- Unique “Drip-less” formulation.
- Forms a full barrier with plug.
- Forms a dry non-tacky film that lasts between milkings.
- Easily removed before milking.
- Compatible with popular pre-dip products.

NDC # 29983-0032-4

**LESS DRIP  
LESS WASTE**



# TRANSCEND

## SANITIZING 1% IODINE BARRIER TEAT DIP

A **PREMIUM**, “TRUE” BARRIER TEAT DIP CONTAINING AN ADVANCED TRIPLE-INGREDIENT EMOLLIENT SYSTEM.

PROTECTS AGAINST BOTH CONTAGIOUS & ENVIRONMENTAL

**ACTIVE INGREDIENT:**

Nonylphenoxyethoxyethanol-Iodine Complex.... 5.00 %  
(Provides 1.0% minimum Titratable Iodine)

**INERT INGREDIENTS:**

Emollients..... 12.00 %  
Other Inerts..... 83.00 %  
(Includes Buffering Agents and Surfactants)

TOTAL: ..... 100.00 %

pH of 5.5 at time of manufacture

This product contains highly effective levels of free iodine for fast kill of mastitis causing organisms.

**GENERAL RECOMMENDATIONS**

1. Use teat dip applicators made of plastic or other non-corrosive materials. Do not use cups made of aluminum.
2. When solution in the teat dip cup becomes dirty and/or noticeably loses color, discard remaining contents and refill cup with fresh teat dip.
3. Do not use this product for cleaning or sanitizing equipment.
4. Wash teat dip cups after each milking.

**RECOMMENDED PROCEDURES FOR TEAT SANITATION**

**POST-MILKING (POST-DIPPING)**

Immediately after milking, dip all teats full length with TRANSCEND Teat Dip. Ensure good coverage of all sides of the teats and teat orifices.



**WARNING**

DO NOT DILUTE THIS PRODUCT.  
DO NOT RETURN TEAT DIP LEFT IN THE TEAT DIPPER TO STORAGE CONTAINER.

TEAT DIPPED TEATS ARE DRY BEFORE USE ON ANIMALS. DO NOT RE-DIP THE TEATS.

PROTECTS

**CAUTION: KEEP OUT OF REACH OF CHILDREN.  
AVOID CONTACT WITH FOOD. DO NOT TAKE INTERNALLY.**

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FOR MEDICAL EMERGENCIES CALL 1-800-424-9300**

**A PART OF THE COMPLETE IBA SANITATION PROGRAM**

EXP. DATE:

LOT NO.:

NET CONTENTS: 5 GALLONS

IBA STOCK # 160121

600E

MANUFACTURED EXCLUSIVELY FOR IBA INC., SANITATION DIVISION, 27 PROVIDENCE ROAD, MILLBURY, MA 01527

# Let's recap....

- Germicides, Complexing agents, Skin conditioners, Wetting agents, Surfactants, Water, Colorants, Thickeners, pH buffers, Stabilizers
- FDA regulated
- pH affects efficacy and teat skin health
- Ingredients hang in a delicate balance



# This is Difficult Chemistry



WHO is making the dip?









# Quality Control

- Concentrate is made
- Tested for strength, pH etc.
- Ready-To-Use dip or another concentrate is made
  - pH, strength, stability, freeze/thaw cycle
- Samples are retained of all final product and concentrates for one year after the expiration date



# Quality Control

- Extensive shelf life stability program
- Log all products and product stability
- FDA visits
- All raw materials tracked
  - Sources
  - Batches
  - Lot #s
- Paper trail for everything



# Efficacy Data

- On farm testing
  - Expensive
  - Results are hard to replicate
  - Not always necessary
- Lab testing
  - Faster
  - Less expensive
  - Repeatable results



**IBA EPIC TEAT DIP**

Date Finalized	Organism/ATCC	SPC (cfu/ml)	Run	seconds	% reduction
4/22/2012	Staphylococcus aureus ATCC 25923	2.5 x 10 <sup>8</sup>	1	15	>99.9
				30	>99.9
				45	>99.9
			2	15	>99.9
				30	>99.9
				45	>99.9
4/22/2012	Serratia marcescens ATCC 14756	9.9 x 10 <sup>8</sup>	1	15	>99.9
				30	>99.9
				45	>99.9
			2	15	>99.9
				30	>99.9
				45	>99.9
4/27/2012	Corynebacterium bovis ATCC 7715	6.0 x 10 <sup>5</sup>	1	15	>99.9
				30	>99.9
				45	>99.9
			2	15	>99.9
				30	>99.9
				45	>99.9
4/22/2012	Streptococcus agalactiae ATCC 27956	3.1 x 10 <sup>7</sup>	1	15	>99.9
				30	>99.9
				45	>99.9
			2	15	>99.9
				30	>99.9
				45	>99.9
4/22/2012	Streptococcus dysgalactiae ATCC 43078	1.0 x 10 <sup>8</sup>	1	15	>99.9
				30	>99.9
				45	>99.9
			2	15	>99.9
				30	>99.9
				45	>99.9
4/22/2012	Escherichia coli ATCC 25922	1.3 x 10 <sup>9</sup>	1	15	>99.9
				30	>99.9
				45	>99.9
			2	15	>99.9
				30	>99.9
				45	>99.9
4/22/2012	Pseudomonas aeruginosa ATCC 15442	7.7 x 10 <sup>8</sup>	1	15	>99.9
				30	>99.9
				45	>99.9
			2	15	>99.9
				30	>99.9
				45	>99.9
4/22/2012	Klebsiella pneumoniae ATCC 13883	9.8 x 10 <sup>7</sup>	1	15	>99.9
				30	>99.9
				45	>99.9
			2	15	>99.9
				30	>99.9
				45	>99.9
4/22/2012	Streptococcus uberis ATCC 700407	2.3 x 10 <sup>8</sup>	1	15	>99.9
				30	>99.9
				45	>99.9
			2	15	>99.9
				30	>99.9
				45	>99.9
4/27/2012	Prototheca wickerhamii ATCC 16529	1.6 x 10 <sup>8</sup>	1	15	>99.9
				30	>99.9
				45	>99.9
			2	15	>99.9
				30	>99.9
				45	>99.9

So...WHO is mixing the dip?



# Concentrates

- Right ingredients in the right amounts
  - Water
  - Glycerine
  - Concentrate
- Is it being mixed properly?
- Is the equipment clean?
- Are samples being retained?





# Concentrates

- Water, water, water
  - pH
  - Mineral content (minerals can bind the active germicide, etc)
  - Bacterial count
  - Regular testing
  - Correct amount



# Storage

- How are dips being stored on farm?
- Can dirt/manure/other chemicals get into the dip container?
- Is a silo being used? Is it ever cleaned?
- Tubing used to pump dip? Is that cleaned?



# The Good

- Strong active ingredient
- Complexed, buffered, stabilized correctly
- Appropriate amount of skin conditioners
- Stored in a clean, somewhat temperature controlled environment
- Mixed or diluted appropriately
- Clean, soft water



# The Bad...

- Weak active ingredient (organic acids)
- Bare bones chemistry
- Poor storage
- Poor application
- Hard water



# The Ugly

- Questionable active ingredients (bleach)
- Poor supporting chemistry
- No testing/data
- No record keeping/registrations
- Malfunctioning equipment
- Dirty water
- Dumping unused dip back in barrel
- Dirty storage conditions



# The Good, the Bad, the Ugly...

- A good active ingredient can become ugly
- The rest of the chemistry is just as important
- Skin condition is always paramount









# Resources

- National Mastitis Council
  - [www.nmconline.org](http://www.nmconline.org)
  - Efficacy data
  - Guidelines
  - Factsheets
- Dairy Practices Council



# Resources

- MANUFACTURER
- IBA – [www.iba-usa.com](http://www.iba-usa.com)  
508-865-6911  
jbelsito@iba-usa.com



# Questions

