Subrogation Water Damage Webinar Part 2: Pipe Failures & Hot Water Heaters

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Introduction: Why Do We Care?

- **$18.5 Billion Dollars**
  - 45.1% of all claims in 2015 (totaling $41.2 billion) were water damage or freeze claims
- **1 in 50 homes** has a claim caused by water damage or freezing every year

Source: Insurance Information Institute: https://www.iii.org/fact-statistic/facts-statistics-homeowners-and-renters-insurance#Homeowners Losses Ranked By Claims Severity (Average Claim), 2011-2015 (1)

Homeowners Insurance Losses By Cause, 2011-2015 (1) SHARE

(Percent of losses incurred)

Cause of loss	2011	2012	2013	2014	2015
Property damage (2)	**96.9%**	**96.7%**	**95.3%**	**96.2%**	**97.1%**
Fire and lightning	18.3	22.9	28.2	24.1	23.8
Wind and hail	45.7	48.8	30.5	28.7	20.3
Water damage and freezing	22.0	17.5	26.7	33.4	45.1
Theft	2.4	2.9	3.4	2.4	1.8
All other property damage (3)	8.6	4.5	6.5	7.6	6.1
Liability (4)	**3.1%**	**3.3%**	**4.7%**	**3.8%**	**2.9%**
Bodily injury and property damage	2.9	3.2	4.4	3.6	2.7
Medical payments and other	0.1	0.2	0.2	0.2	0.2
Credit card and other (5)	**(6)**	**(6)**	**(6)**	**(6)**	**(6)**
Total	**100.0%**	**100.0%**	**100.0%**	**100.0%**	**100.0%**

(1) For homeowners multiple peril policies (HO-2, HO-3, HO-5). Excludes tenants and condominium owners policies. Excludes Arkansas, Texas and Puerto Rico.
(2) First party, i.e., covers damage to policyholder's own property.
(3) Includes vandalism and malicious mischief.
(4) Payments to others for which policyholder is responsible.
(5) Includes coverage for unauthorized use of various cards, forgery, counterfeit money and losses not otherwise classified.
(6) Less than 0.1 percent

Source: ISO®, a Verisk Analytics® business.

CPVC

- Potable Water & Sprinkler Systems
- Inherent defects that cause “Premature Failure” – pipes become weak and break
- Average Life Should be 40 to 50 Years
    - Failures can happen within 10 years

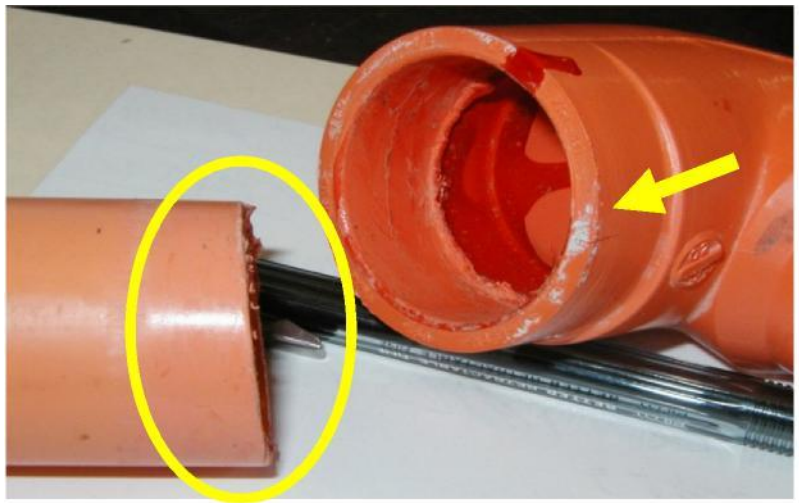
WHAT IS CPVC?

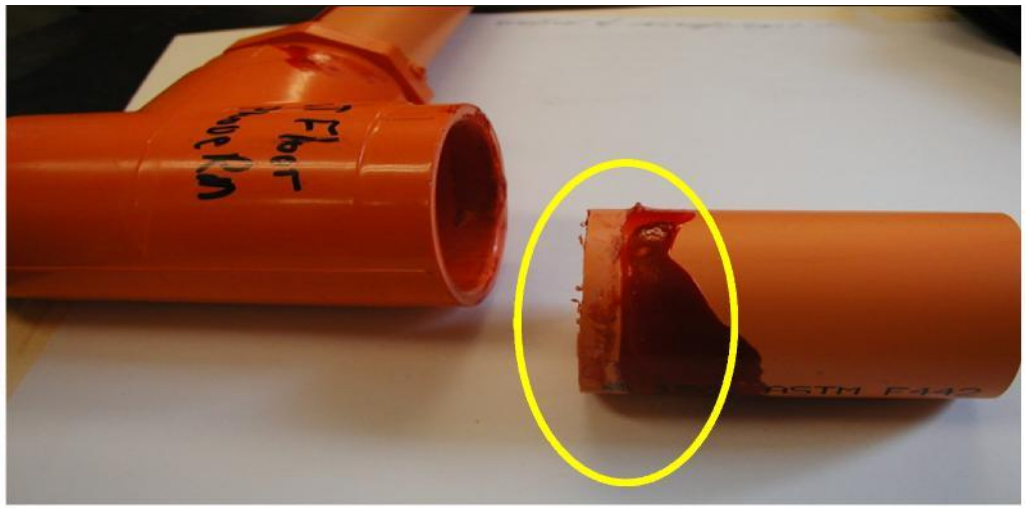
Why use CPVC?

- **<u>Faster, Cheaper, Easier</u>**
  - Faster to install
  - No Plumber needed
  - Lighter weight
  - faster to repair damaged sections
  - Less likely to cut the installer (burrs, sharp edges)
  - Lower system maintenance costs
  - When installed correctly they work great!

FAILURE TYPES FOR CPVC

- INSTALLATION ISSUES – Assembly Issues
    - Pipe not cut perpendicular to axis
    - Burr not removed / improper cutting
    - Not enough overlap
    - Excessive Glue (also leads to ESC)



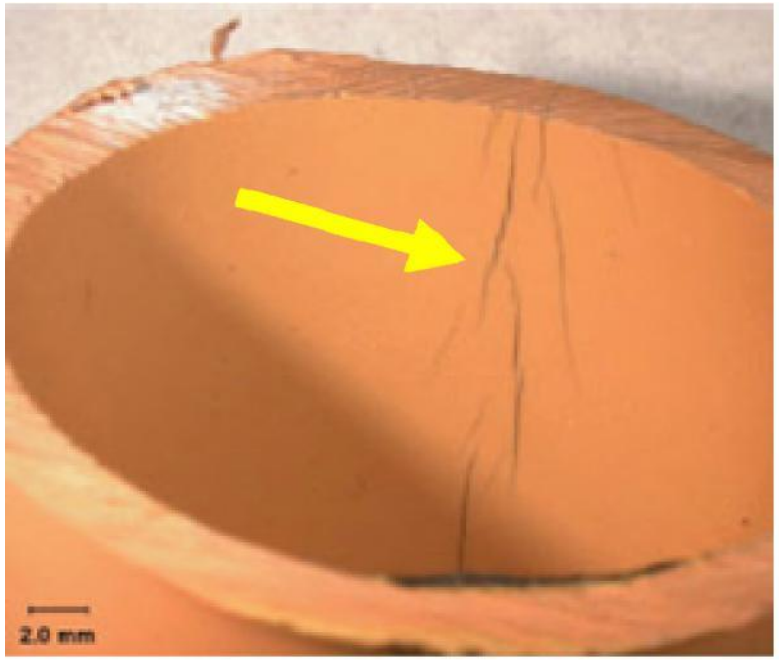


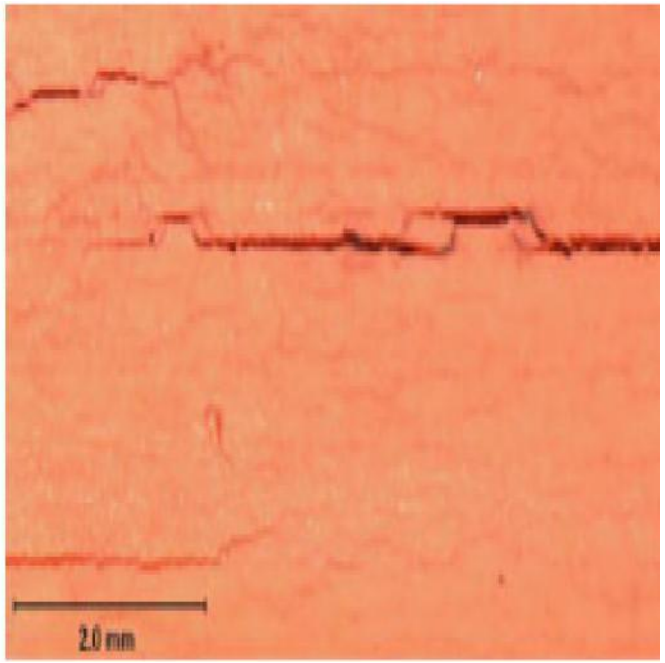
FAILURE TYPES FOR CPVC

- CHEMICAL ATTACK
  - Environmental Stress Cracking “ESC”
  - Aggressive agents
  - Stress
  - Time frames
  - Temperature
  - Potential for more than one failure

Practice Tip: Chemical Attack failures are not just manufacturing claims and can involve improper install (excessive glue); ESC starts small and end up big; properties usually have history of small leaks prior to a major break and also raises potential for claim against third party service providers who perform periodic maintenance for failure to warn

ENVIRONMENTAL STRESS CRACKING (ECS)





FAILURE TYPES FOR CPVC

- CHEMICAL ATTACK– INCOMPATIBLE PRODUCTS

Other Compatibility Topics

Updated: October 10, 2016
Supersedes: March 4, 2016

Acetone
Antifreeze
Cable

Cleaners
Cleaning CPVC Pipe
Cooking Oils
Dishwashing Liquid
Drains

Flexible Materials
Fireproofing
Fungicides

Gap Filler
Grease
Hangers and Straps

Heat Trace
Insecticides
Insulation
Leak Detectors
Metal Piping Connected to Installed CPVC Piping
Mold Inhibitors
Paint
Plasticizers

Polyurethane (Spray-on) Foams
Primers
Residual/Cutting Oils with HVAC Applications
Rubber
Sleeving Materials
Solvent Cements
Spray-on Coatings
Steel Piping with Antimicrobial Coating
Teflon® Tape
Termiticides


Dezincification & Corrosion
1/2

Bronze vs. Brass

- Bronze is an alloy of copper, tin, and other elements.
- Brass is an alloy of copper, zinc, and other elements.
- General Difference = Tin vs. Zinc

Dezincification/Stress Corrosion Cracking

- Brass Containing Less Than 85% Copper Susceptible
- Brass Containing More than 15% Zinc Susceptible
- Brass Containing Less Than 70% Copper and More than 30% Zinc provide service to a Water System is **Highly Susceptible** to Dezincification and Stress Corrosion Cracking.

- **Dezincification**
  - Form of Corrosion - leaching of zinc from brass by chemical reaction between water and brass
  - Fittings become more brittle & less capable over time of handling normal water pressures

- **Stress Corrosion Cracking**
  - Cracking of material induced from the combined influence of tensile stress (ability to stretch/elongate) and a corrosive environment.
  - SCC arises from combination of: (1) weak material, (2) corrosive environmental conditions/chemicals, and (3) tensile stress on the material

Dezincification Risk

- Biggest Factor: High “Zinc” Content in Brass Fittings

  Zinc < 15% Low Risk

  Zinc > 28% High Risk

- Zinc is Cheaper!!!
  - foreign manufacturers do not follow specifications
  - Foreign manufacturers use cheaper materials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Failure Analysis and Prevention

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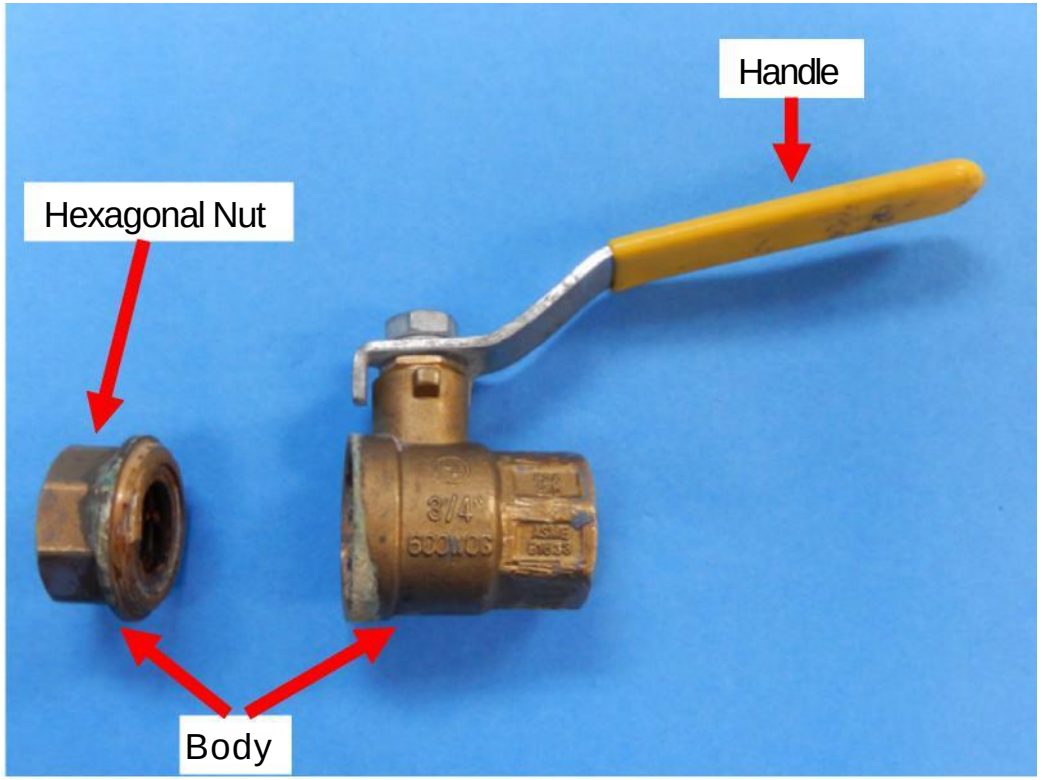
Dezincification occurs in brasses containing less than 85% Cu. Zinc corrodes preferentially, leaving a porous residue of copper and corrosion products. Alpha brass containing 70% Cu and 30% Zn (copper alloy C26000) is particularly susceptible to dezincification when exposed in an aqueous electrolyte at elevated temperatures.

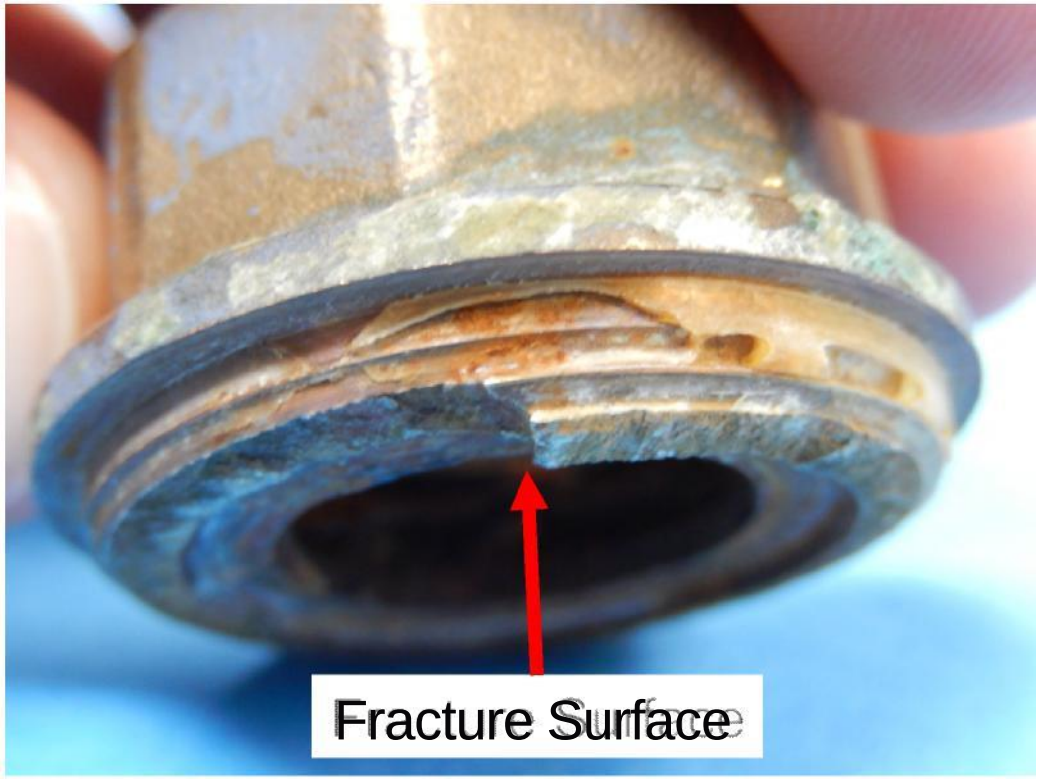
Dezincification proceeds as follows: the brass dissolves, the zinc ions stay in solution, and the copper plates back on. Dezincification can proceed in the absence of oxygen, as evidenced by the fact that zinc corrodes slowly in pure water. However, oxygen increases the rate of attack when it is present. Analyses of dezincified areas usually show 90 to 95% Cu, with some of it present as copper oxide.

Dezincification may be either uniform or of the plug type (Fig. 5). High zinc content in a brass favors uniform attack; relatively low zinc content favors plug-type attack. Composition

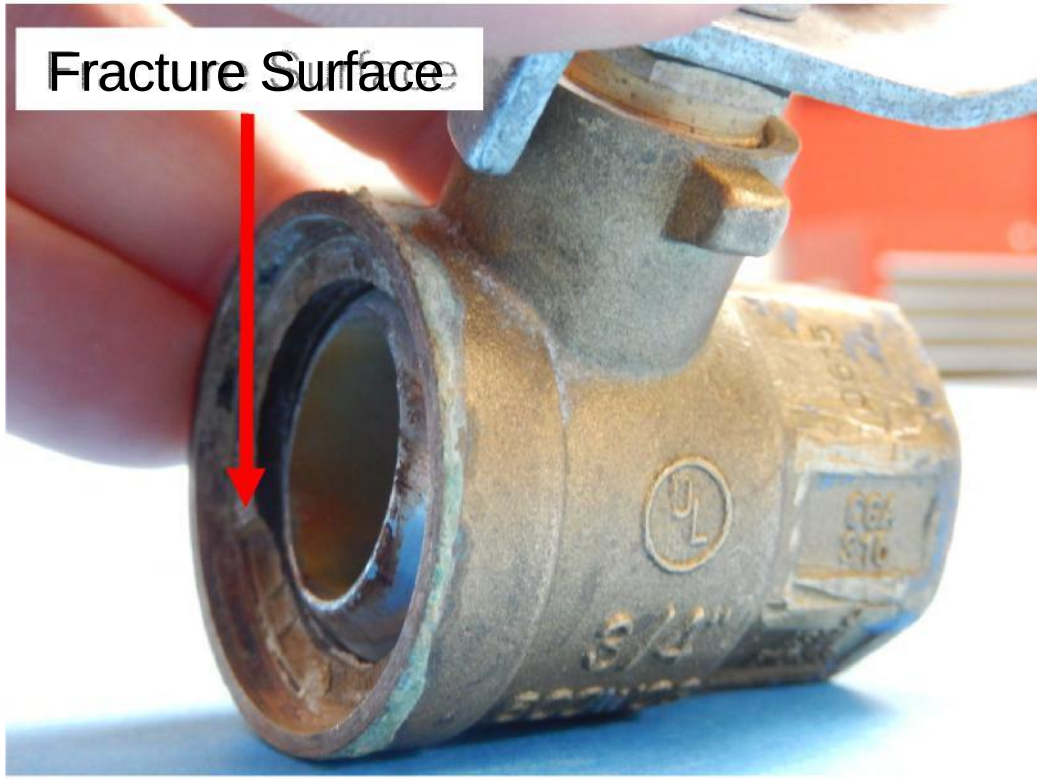
Dezincification in Brass



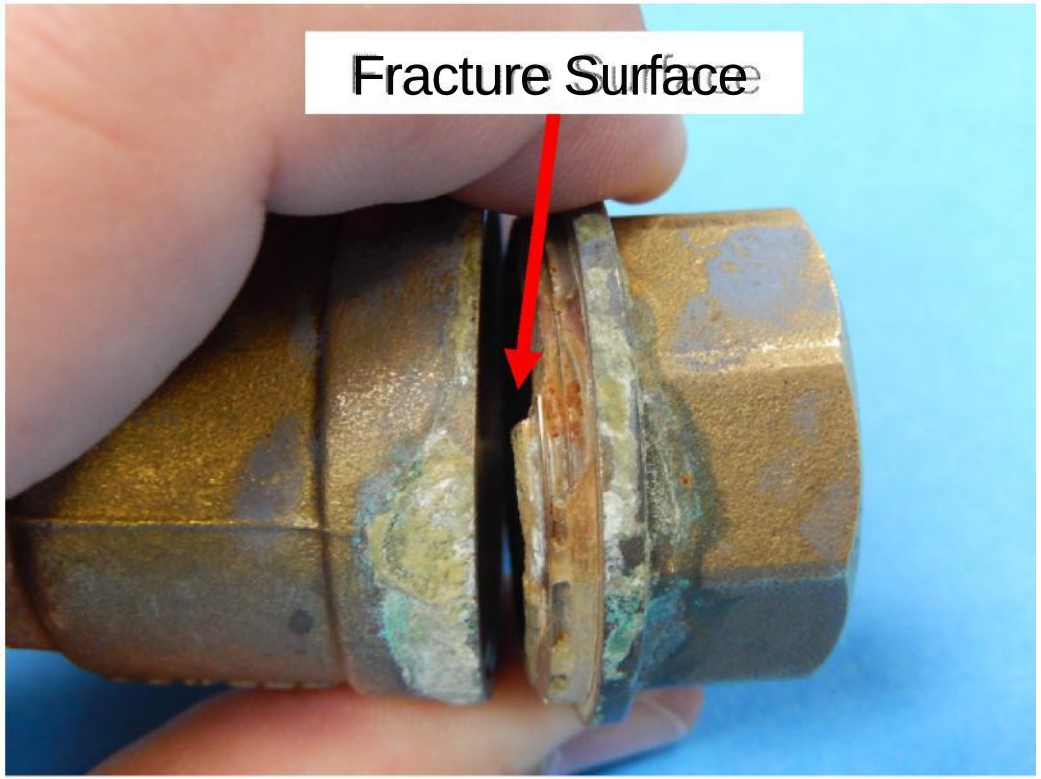
The Failed Nut



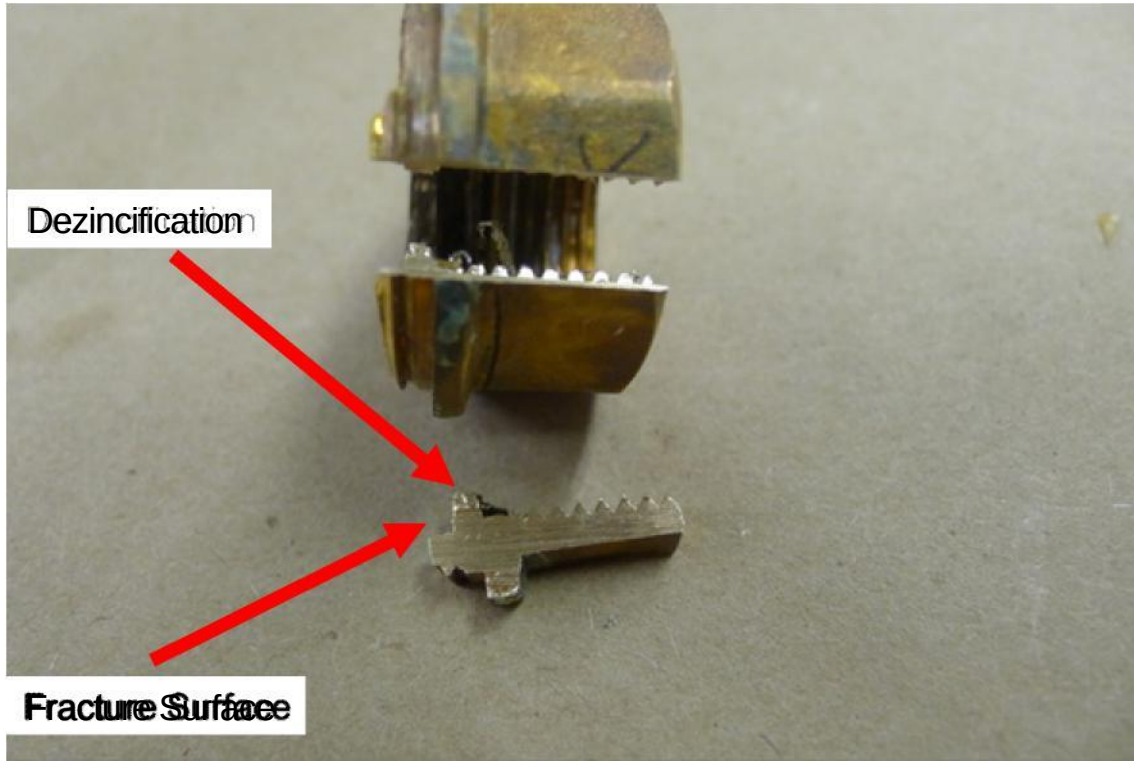
The Failed Body



The Failed Body



Metalurgical Testing

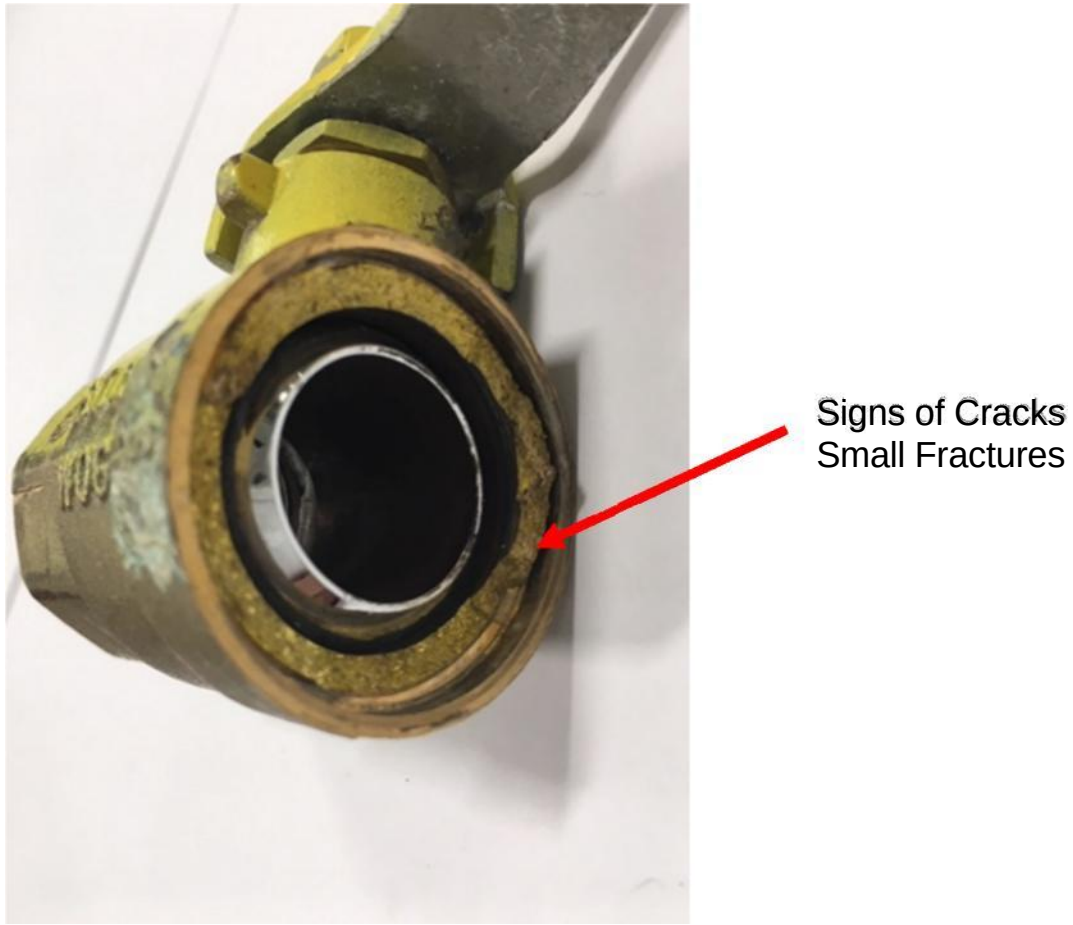


Metalurgical Testing

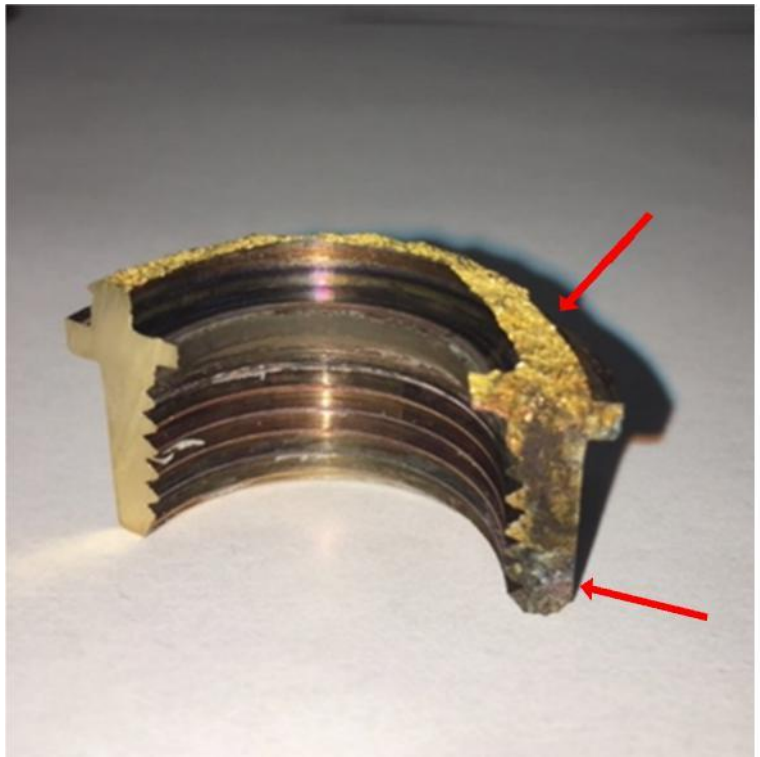
- Testing of materials of alloy will show Zinc and Copper Content
- Assists in determining whether Dezincification or Stress Corrosion Cracking
- ***Important to Keep Physical Evidence***
  - ***The metallurgy will not lie!!!***

Stress Corrosion Cracking in Brass

Stress Corrosion Cracking

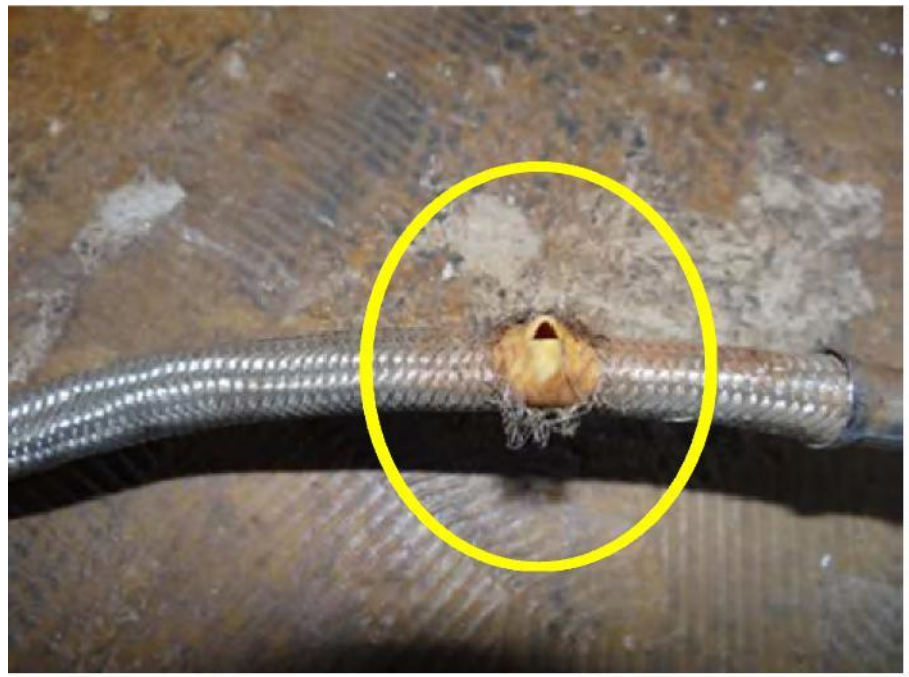


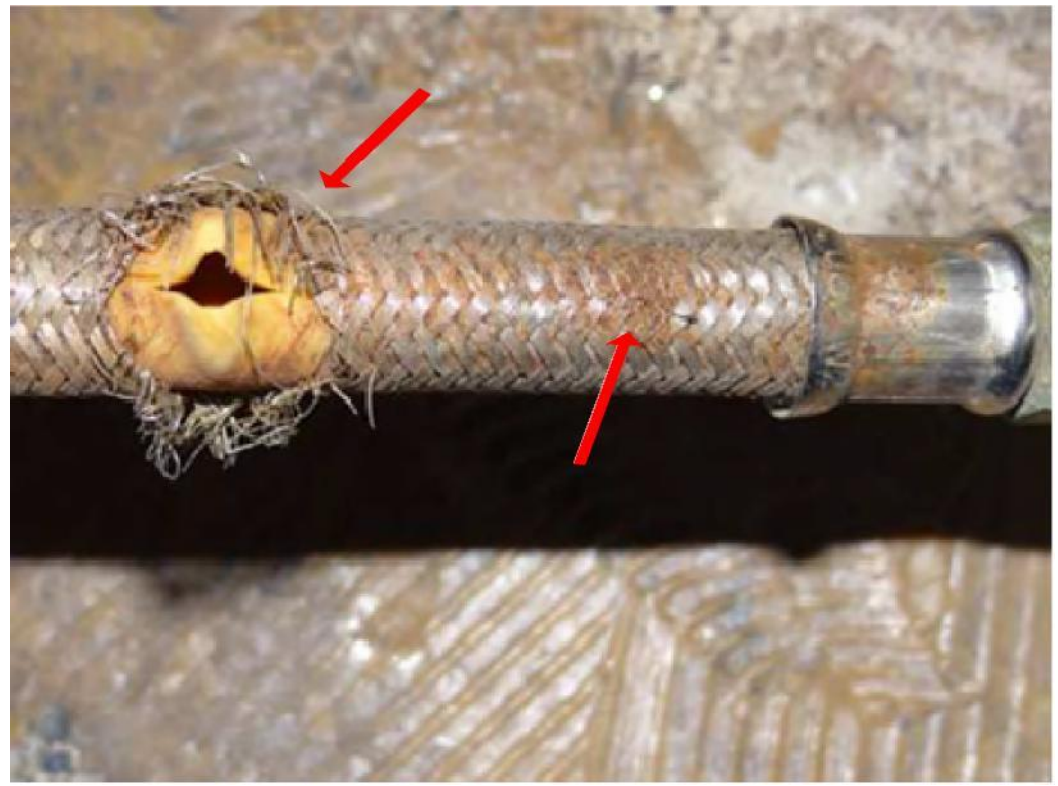
Stress Corrosion Cracking



Water Supply Lines & Valves

- Flexible tubing that is either covered with "braided" stainless steel or brass, or non-braided plastic
- Defective and/or low-grade materials in water supply lines, valves and coupling nuts, which are the parts used to connect the lines to the property's water supply
- Supply lines can crack, burst, or break before they should, which causes leaks, flooding and property damage
- Valves and connections can corrode over time from weak materials





Water Supply Line Materials Issues

- How?
  - Braided mesh exterior mesh fails & interior tube not strong enough to withstand interior pressure or exterior forces
- Causes?
  - Abrasion
  - Environment
  - Materials Issues
  - Design Defect
  - Age
  - Environmental Factors

Corrosion – Angel Stop Valves

Under-Sink Water Filters

- Under-sink water filters are systems fitted under your sink or counter that use changeable cartridges to filter water before it gets to the drinking tap
- Plastics Material and Casings of some under-sink water filters can crack or lose their watertight seals when placed under pressure

Under-Sink Water Filters

Class Action

A lawsuit in which one person makes a claim and sues on behalf of a large group of people who have similar legal claims, usually against a company organisatiomile ᴛ.

Class Actions

- **Note: Check Age, Time, Status, Deadlines, & Exclusions**
- **CPVC Pipping**
  - FlowGuard Gold, Condo Class Action Lubrizol/Blazemaster & Various Manufacturers
- **Under-Sink Water Filters**
  - Emerson/3M InSinkerator F-201R

Note: Google It!!!

- **Brass Fittings**
  - Zurn, Uponor, Vanguard
- **Water Supply Lines**
  - EZ-Flo, Fluidmaster, Watts Water, DuraPro (connectors)
  - other common ones BrassCraft, Everflow

Eligibility & Exceptions to Class Actions

- Example: Insinkerator Water Filter
  - With certain exceptions, the Settlement Class includes all persons who, as of Jan. 22, 2018 (the "Opt-Out Date"), **owned or leased a residence or other structure in the U.S. in which is installed an InSinkErator F-201 dispenser**
    - The Settlement Class does *not* include:
      - Persons who experienced property damage caused by failure of a Filter on or before Jan. 22, 2018;
      - Persons who initiated legal proceedings over these issues (other than this class action lawsuit) before Jan. 22, 2018;
      - Persons who properly opt out of the settlement.

Theories of Liability

- Product Defect/Negligence
  - Manufacturing/Design Defects
    - "Defective Materials" – Can Be Design & Manufacturing
  - Warranties/Guarantees/Misrepresentations
    - "Misrepresent" uses, lifespan of product
  - Sellers in the Chain of Distribution / Foreign Manufacturers
    - Any seller in the U.S. is some states
  - Defenses?
    - Improper Maintenance, Treatment of/Contaminants in Water System, Building Pressure, Failure to Follow Plans (Bronze v. Brass), Unforeseen Environmental Factors
    - Statutes of Repose/Statutes of Limitations – Know Your State

MST Hitbria MdER

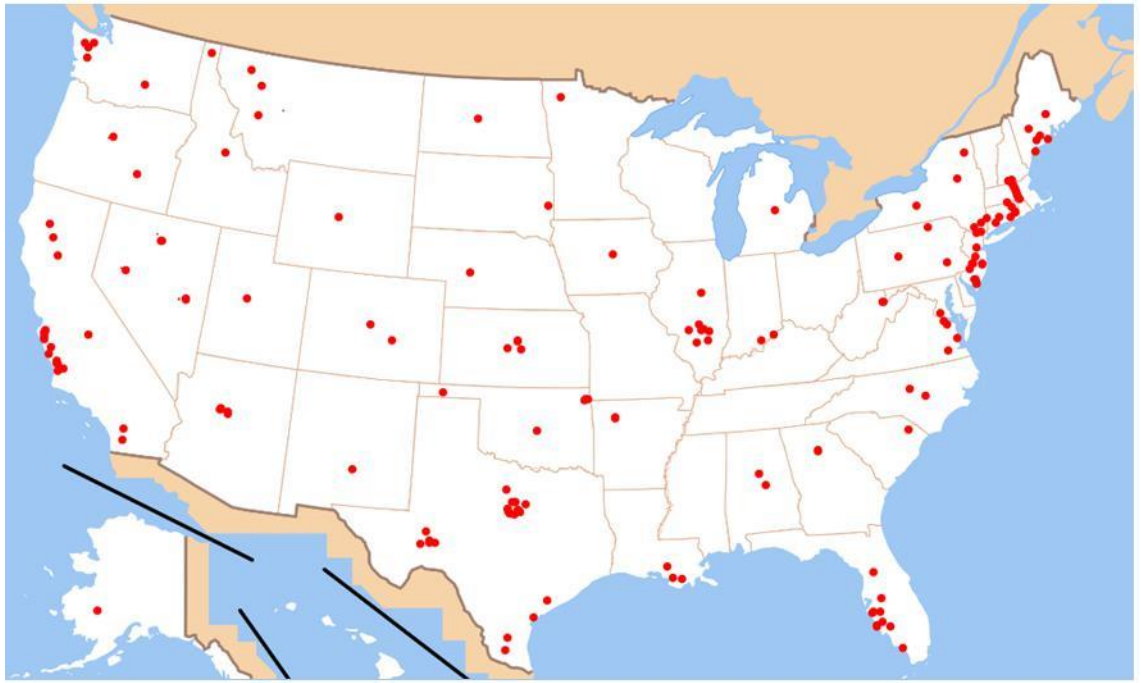
Water Heater Failure Claims

- Common Failures
- Failure Modes
- Affirmative Defenses
  - Drip Pan & Age of Product
- Theories of Recovery
  - Manufacturing v. Design Defects
    - Magnesium Anode Rod
    - Code Requirements for Ceramic Coating
    - Disconnection of Electrical Charge

A problem is identified:

**Client seeing repetitive water heater failures

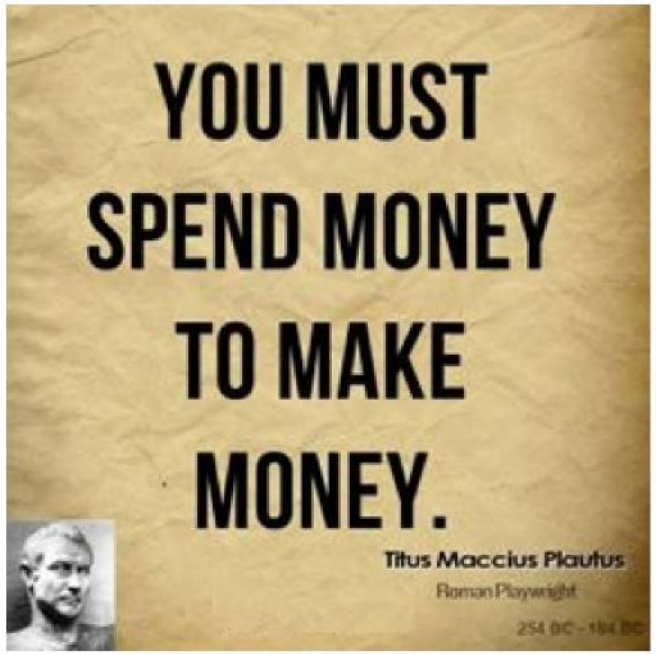
**The manufacturer is not taking the claims seriously



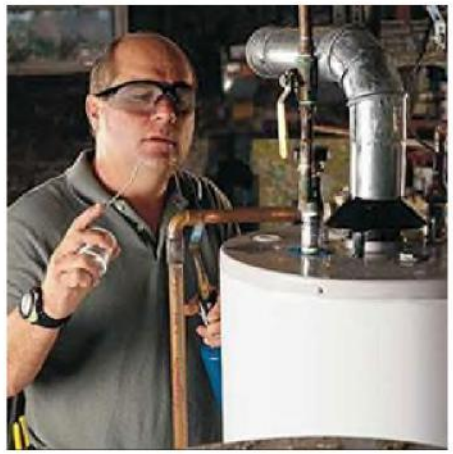
Claims are tracked and grouped

Over 150 water heater leak claims are identified and forwarded for handling.

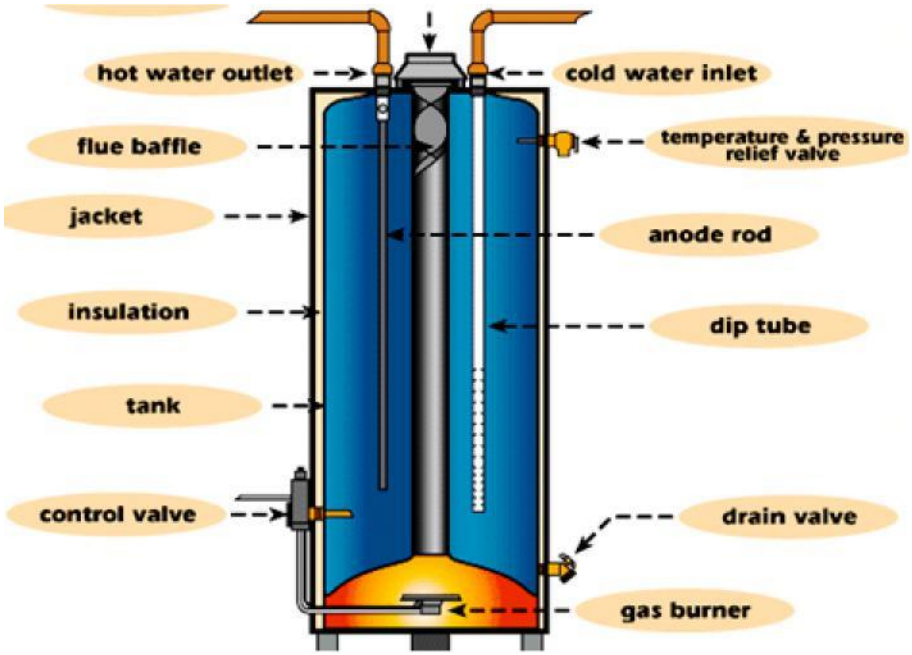
Experts are hired



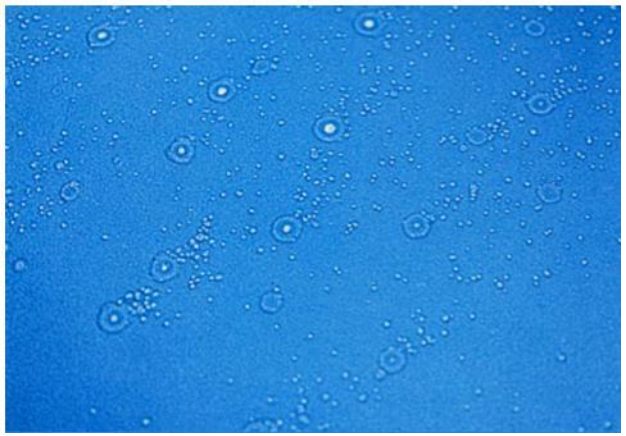
Bundling claims makes economic sense



Defects are Identified



*Impact Fractures



*Fish Eyes

Anode Rod

The resistor fails and the anode rod is non-conductive.

Leaving the tank exposed

Categories Determined

Claims organized by failure mode, warranty, age of water heater, dollar amount of loss and statute of limitations

Anticipate
<u>Defenses</u>

*Lack of a drain pan

May not be effective depending on area of leak and flow rate

Anticipate Defenses

*Owner failed to check Anode

Aggressive Pursuit

Global Settlement Negotiation

Thank You

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