Level 1, part II: Softener efficiency and evaluation
Definition: The amount of hardness that a water softener can remove from water per pound of salt

Expressed as grains per pound

A softener with an efficiency of 4000 grains per pound removes 4000 grains of hardness for every pound of salt used by the softener
Efficiency varies between models

1 pound of salt
← Softens less water
Softeners more water →

1 gallon of gas
← Goes fewer miles
Goes more miles →

Outline
Overview of chloride issue
Water softening basics
  Water hardness
  How softeners work
  Factors in salt use
Fundamentals of water softening efficiency
  Efficiency definition
  How efficiency affects chloride use
  Factors that affect efficiency
Softener evaluation scenarios
  Evaluation process
  Practice scenarios
Intro to Salt Savers Program
Variation between softener efficiency

Old, deteriorated softener
Efficiency: 2000 grains/pound

Brand new softener
Efficiency: 4000 grains/pound
→ Can go twice as long between regenerations
→ Uses half as much salt
Factors that affect softening efficiency

1) How it regenerates
2) Age
3) Model of softener
4) Softener settings
Regeneration type

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Based on days (time-clock)

- Regenerates after a programmed number of days, no matter how much water was softened
- **Less efficient** because the softener may regenerate before softening capacity is used up → discharges chloride more frequently

Based on gallons (demand-initiated)

- Regenerates after a programmed or metered number of gallons passes through the softener
- **More efficient** because the softener regenerates only when softener capacity has been used up

Madison Metropolitan Sewerage District
Time clock example

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**Time clock**

“I’m going to empty and refill my gas tank every 7 days, because I assume I’m going to use up all my gas in 7 days”

→ What about weeks when you drive less?

**Demand initiated**

“I’m going to fill up my gas tank when my tank is almost empty”

→ Doesn’t matter how much time has passed, only how far you’ve driven
Day-regeneration identification

- Look for control labels or tabs that indicate a number of days between regenerations
- If a time-clock, recommend replacement
Gallon-regeneration identification

- Look for control labels that or tabs that indicate a number of gallons between regenerations
- Can be digital or controlled by a dial
- Be aware of day overrides on demand-initiated softeners

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Poll Questions 5-8
Time clock or demand-initiated?

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Time clock or demand-initiated?

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2) How old is the softener?

- Resin beads break down/foul over time, resulting in lost efficiency (~1.5-2%/year)
- Parts experience wear
- Typical softener lifespan of 15-20 years
- **If older than 15 years, recommend replacement**
Determining age

- Sometimes indicated on unit – look for sticker or installation info
- Ask property owner or vendor
- Type of softener (e.g., time-clock)
3) What is the softener model?

- Different models designed to work more efficiently
- Identification depends on detail of labeling
- See “clunker” list
- If an identified “clunker,” recommend replacement with an efficient unit
Determining softener brand/model

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Remote evaluations highly encouraged

Most of the information in an evaluation can be collected over a phone or video call with a customer!

- Safer during COVID-19
- Can be done from your office
- Same reimbursement rate as in-person
Remote evaluations

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App up on your browser screen

Device screen with video call with customer
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Practice Evaluations

Scenario 1 in guidebook
Page 15
Pump station 9 pilot

- Small, measurable area of sewer system
- Test app/process
- Give customers an “easy button”
- Involve municipalities

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Your role in the pilot

- Get listed as a trained service provider
- Promote program to customers in pilot areas
- Perform services and report them in the app
Pilot process

1) Initiate a service
   • Option 1: a customer calls you off the trained service provider list
   • Option 2: you initiate the softener evaluation with a customer in the pilot area

2) Perform service and document in app

3) Customer receives reimbursement from Village of McFarland.
Reviewers see data in dashboard

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Report automatically emailed

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Goes straight to customer

Summarizes actions taken on job and future recommended actions

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For any recommended actions not performed during this job, contact a qualified service provider to perform these actions to help you keep your home salt use low. Find trained service providers at www.madsewer.org/SaltSavers.
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