Iontophoresis agents we currently use in our clinic:

**ACETATE**: for chronic inflammation (>3 weeks) and can dissolve calcium deposits
- **Physiology**: NSAID, acid radical production in alkaline area
- **Polarity**: negative (black electrode)
- **Source**: 5 to 10% glacial acetic acid per pint water
- **Must be refrigerated; replace after 6 months**
- **Do not use with allergy to vinegar or an indocin allergy**

**DEXAMETHASONE**: for acute inflammation (from 1 week when initial wound or inflammatory response has subsided to 3 weeks post injury)
- **Physiology**: steroidal anti-inflammatory
- **Polarity**: negative (black electrode)
- **Source**: Dex NaP Decadron 4 mg/ml dexNaPO4
- **Should be refrigerated**
- **Contraindications**: steroid induced cataracts, allergy to sulfites
- **Caution with diabetes; often will spike blood sugar**

**CHLORINE**: for softening of scar tissue and adhesions
- **Physiology**: Sclerolytic
- **Polarity**: negative (black electrode)
- **Source**: 1 Tbls. NaCl/pint of water; 2 to 10% solutions acceptable
- **Often available in the form of sterile saline for wound care; check concentrations**

**IODINE**: for fibrositis and scar adhesions
- **Physiology**: sclerolytic and antiseptic
- **Polarity**: negative (black electrode)
- **Source**: Potassium iodide, 2%
- **Contraindications**: allergy to shellfish or iodine allergies
- **Can combine with NaCl for longstanding adhesions**

Useful information when expanding your use of iontophoresis

**Do not use any electrical modality if the person has a pacemaker or is pregnant.**
- Depth of penetration is 1 to 16 mm.
- Penetration is best when skin resistance is low and the target tissue is not heated.
- Maximum depth of penetration is 2 hours after the unit is off.
- Can soak in cool water prior to iontophoresis to improve the tolerance to the flow of ions; good hydration is important.
- Larger pads will have a lower current density and may be tolerated better.
- The anode (red, +) is sclerotic, tends to harden tissue, produces an acid reaction on the skin; use an antacid to calm the skin if irritation occurs.
- The cathode (black, -) is sclerolytic, softens tissue, produces an alkaline reaction on the skin; use a slightly acid cream such as Vaseline intensive care lotion to neutralize the pH on the skin if irritation occurs.
• DC current blocks the sweat glands; small white bubbles can appear over these blocked sweat glands. I find this happens more with acetate. Apply Vaseline ointment over any irritated area and avoid applying the electrode over that bubble in the next treatment. Using a weaker concentration of the agent may also help.
• When using ionto, begin with 40 mAmp minute dose and ramp up to a maximum of 80mAmp minutes over the next few sessions. If one agent is not effective, change the agent used, or discontinue within 3 sessions; if effective, I usually average 6 sessions but this is quite variable.

OTHER IONTOPHORESIS AGENTS:
• Salicylate (-) decongestant, analgesic
• Magnesium (+) antispasmodic, analgesic, vasodilator
• Xylocaine (+) anesthetic for neuritis
• Lithium (+) replaces Ca with gout
• Gapapentin (-) anticonvulsant for neuropathic pain
• Ketoprofen (-) NSAID
• Calcium (+) stabilizer of irritability threshold for myospasm
• Copper (+) antiseptic, astringent
• Zinc (+) antiseptic, i.e. with skin ulcers
• Hyaluronidase (+) to reduce edema
• Antibiotic agents and more!

Compounding Pharmacies can mix agents and have more information on the specific uses and contraindications for the above.

• VWR Scientific; 1310 Goshen Parkway, West Chester, PA 19380; 800 932 5000
• Lee Pharmaceuticals, 1444 Santa Anita Ave., S. El Monte, CA 91733
• Family Pharmacy, Aiken, SC 29801; 866 649 1776
• Custom-Rx Compounding, Richfield, MA 55423; 888 303 9033
• Stokes Pharmacy, Medford, NJ 08055; 800 754 5222
• Vann Healthcare Services, Glasgow, KY 42141; 800 869 7651
• (Conley’s Pharmacy, Ipswich 978 356 2121 is a local compounding pharmacy)

Additional References:

Lectures by John Garzione, PT, AAPM (Jgarzione@mkl.com)
John provided 5 pages of references at the Empi sponsored conference on Iontophoresis in April of 2004.
Your Empi or Iomed representative will have supporting literature.
Rehab of the Hand, Hunter; articles in the APTA Journal; textbooks on electrotherapy

(Information compiled by Marjorie Talacko, OTR/L, CHT,)