Dental Office Chemicals

- Dental Industry Overview
- Dental Office Injuries
- Chemicals Used
- Wastes Generated
- Waste Management Issues

Tom Barron • Civil Engineer
Sushma Dhulipala • SF Environment
Dental Industry Overview

- General Dentistry
- Pediatrics
- Endodontics
- Periodontics
- Prosthodontics
Dental Office Sizes

- 5 - 9: 27%
- 10 - 19: 9%
- 20 - 49: 2%
- 50 - 99: 0.1%
- 100 - 249: 0.02%
- 1 - 4: 62%

Source: US Census - California (Late 1990s)
Dental Office Layout

- Front Office
- Operatories
- Back Office
  - Lab Areas
  - Break Room
  - Storage
  - Utility Closet
Lab / Work Areas

- Chemical Storage
- Ultrasonic Cleaner
- Sterilizer
- X-Ray Processor
- Medical Wastes
- Amalgam & Other Chemical Wastes
Utility Closet

- Air Compressor
- Hot Water
- Vacuum System
Dental Office Injuries

Source: State of Washington
Chemical Injuries

Source: State of Washington
Health & Safety Information

- Material Safety Data Sheet (MSDS)
- Product Labels & Use Instructions
- Professional Literature (CDA, ADA, etc.)
- Vendor Training Materials
- Loss Prevention Specialists
Chemicals Dentists Use • 1

- Photography
- Infection Control
- Hygiene Work
- Restoration Work
- Lab Work
- Pharmaceuticals
- Cleaning & Maint.

- Hydroquinone
- Silver
- Glutaraldehyde
- Potassium Hydroxide
- Potassium Sulfite
- Sodium Thiosulfate
- Acetic Acid
Chemicals Dentists Use • 2

- Photography
- **Infection Control**
- Hygiene Work
- Restoration Work
- Lab Work
- Pharmaceuticals
- Cleaning & Maint.

**Sanitizers**
- Ethyl Alcohol
- Triclosan

**Disinfectants**
- Alcohols (Ethyl, Isopropyl)
- Quat. Ammonium Chloride
- Oxidizers (Bleach, $\text{H}_2\text{O}_2$)
- Phenylphenol

**Sterilizers**
- Glutaraldehyde
- Orthophthaldehyde (OPA)
- Formaldehyde
Chemicals Dentists Use • 3

- Photography
- Infection Control
- Hygiene Work
- Restoration Work
- Lab Work
- Pharmaceuticals
- Cleaning & Maint.

- Amalgam (Hg, Ag, Cu)
- Glass Ionomer
- Resin Composite
- Gold
- Porcelain
- Tooth Whitener
- Adhesives
- Disinfectants
- Antibiotics
Chemicals Dentists Use • 4

- Photography
- Infection Control
- Hygiene Work
- Restoration Work
- Lab Work
- Pharmaceuticals
- Cleaning & Maint.

Typical Cleaners With:
- Detergents
- Surfactants
- pH Adjusters
- Builders
- Disinfectants

Concerns About:
- Endocrine Modifiers
- Low & High pH
- Bleach
These Chemicals Generate Wastes …

**Hazardous Wastes**
- Photo processing wastes
- Chemical sterilants
- Line cleaners

**Universal Wastes**
- Amalgam wastes
- Hg lamps
- Computers etc.

**Medical Wastes**
- Sharps
- Biohazardous
- Pharmaceuticals
Lead Foils & Lead Aprons

Hazardous? Yes! Contain lead

Disposal: Should be recycled
Photo Processing Wastes - 2

Fixer and Developer must **NOT** be mixed !!

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**X-Ray Developer**

**Hazardous?** May contain hydroquinone & glutaraldehyde

**Disposal:** Used developer can go down the drain. But unused developer is a hazardous waste.

**Less-toxic tip:** Switch to digital
Photo Processing Wastes - 3

Used X-Ray Fixer

Hazardous? Yes! Contains Silver

Disposal: Recycle to reclaim silver

Less-toxic tip: Switch to digital

Fixer and Developer must NOT be mixed!!
X-Ray Cleaner

**Hazardous?** May contain Chromium

**Disposal:** Treat as hazardous waste

**Less-toxic tip:** Switch to digital
Photo Processing Wastes - 5

X-Ray Film

Hazardous? Yes! Contains Silver

Disposal: Recycle to reclaim silver

Less-toxic tip: Switch to digital
Cleaning & Sterilization Wastes

Hazardous? Yes! Contains glutaraldehyde

Disposal: Treat on-site & discharge to sewer

Less-toxic tip: Autoclave or Dry heat oven
Disinfectants

**Hazardous?:** Contain a variety of toxics (see MSDS)

**Disposal:** Treat as hazardous waste

**Less-toxic tip:** Fully use up product, removing need for disposal.

Bleach must **NOT** be used to clean vacuum lines!!
Amalgam Wastes

- Scrap amalgam
- “Empty” capsules
- Extracted teeth
- Chairside traps
- Vacuum screen

- Gloves & gauze?
- Air filters?
- Instrument cleaning?
- Carpets?
Amalgam Separators
Universal Wastes

Commonly found hazardous wastes that are generally less toxic and therefore, less regulated. E.g. -

- Fluorescent Lamps
- Batteries
- Aerosol Cans
- Mercury Thermometers
- Computers
Medical Wastes

Sharps

Biohazardous

Pharmaceutical

Recycle extracted teeth with amalgam. Do NOT place in the Biohazard (RED) bin.
Surviving Inspections

Strategies

- Schedule Appointment
- Confirm Day Before
- Ask for Checklist
- Focus on Key Points
Acknowledgements

This presentation is the product of a team effort involving a number of organizations and individuals.

Today’s presenters wish to acknowledge the important technical contributions this team made, as well as the persistence with which individual members expressed their views.

California Dental Association
Bay Area Pollution Prevention Group
Palo Alto RWQCP
City of San Francisco
Mid-Peninsula Dental Society
Southern Alameda Co. Dental Society
Union Sanitary District
Betsy Elzufon, LWA
Keith Linn, NEORSD
Dr. Mark Stone, DDS, US Navy
Dr. Jim Stevens, DDS
Dr. Bryan Scott, DDS
THE END
Today’s Presenters

Tom Barron
Civil Engineer
3351 Beechwood Drive
Lafayette, CA 94549
(925) 283-8121
tsbarron@attglobal.net

Sushma Dhulipala
San Francisco Environment
11 Grove Street
San Francisco, CA 94102
(415) 355-3758
sushma.dhulipala@sfgov.org