AMALGAM WARNING
BY MANUFACTURER!

Dentsply/Caulk, a major manufacturer of dental amalgam, has placed the following warning for its amalgam products Dispensalloy, Megalloy, and Unison on their internet site. The URL’s for the various products are: http://www.caulk.com/MSDSDFU/DispensDFU.html, www.caulk.com/MSDSDFU/UnisonDFU.html, and www.caulk.com/MSDSDFU/MegalloyDFU.html.

**Contraindication**

The use of amalgam is contraindicated:
- In proximal or occlusal contact to dissimilar metal restorations.
- In patients with severe renal deficiency.
- In patients with known allergies to amalgam.
- For retrograde or endodontic filling.
- As a filling material for cast crown.
- In children 6 and under.
- In expectant mothers.

**Side Effects/Warning:**

- Prior to use, read the MSDS information and product instructions for this item.
- Exposure to mercury may cause irritation to skin, eyes, respiratory tract and mucous membrane. In individual cases, hypersensitivity reactions, allergies, or electrochemically caused local reactions have been observed. Due to electrochemical processes, the *lichen planus* of the mucosa may develop.
- Mercury may also be a skin sensitizer, pulmonary sensitizer, nephrotoxin and neurotoxin.
- After placement or removal of amalgam restorations, there is a temporary increase of the mercury concentration in the blood and urine.
- Mercury expressed during condensation and unset amalgam may cause amalgamation or galvanic effect if in contact with other metal restorations. If symptoms persist, the amalgam should be replaced by a different material.
- Removal of clinically acceptable amalgam restorations should be avoided to minimize mercury exposure, especially in expectant mothers.

**Precautions:**

- The number of amalgam restorations for one patient should be kept to a minimum.
- Inhalation of mercury vapor by dental staff may be avoided by proper handling of the amalgam,

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the use of masks, along with adequate ventilation.

- Avoid contact with skin and wear safety glasses and gloves.
- Store amalgam scrap in well sealed containers. Regulations for disposal must be observed.

Dentsply/Caulk has also placed the MSDS for mercury on another page [www.caulk.com/MSDSDFU/DispersalloyMSDS.html#MER C]. Of particular importance, are some statements made in Section VIII - Control Measures, Inhalation, Chronic: Inhalation of mercury vapor over a long period may cause mercurialism, which is characterized by fine tremors and erethism. Tremors may affect the hands first, but may also become evident in the face, arms, and legs. Erethism may be manifested by abnormal shyness, blushing, self-consciousness, depression or despondency, resentment of criticism, irritability or excitability, headache, fatigue, and insomnia. In severe cases, hallucinations, loss of memory, and mental deterioration may occur. Concentrations as low as (sic "as") 0.03 mg/m3 have induced psychiatric symptoms in humans. Renal involvement may be indicated by proteinuria, albuminuria, enzymuria, and anuria. Other effects may include salivation, gingivitis, stomatitis, loosening of the teeth, blue lines on the gums, diarrhea, chronic pneumonitis and mild anemia. Repeated exposure to mercury and its compounds may result in sensitization. Intrauterine exposure may result in tremors and involuntary movements in the infants. Mercury is excreted in breast milk. Paternal reproductive effects and effects on fertility have been reported in male rats following repeated inhalation exposures.

The fact that Dentsply/Caulk has placed this information on the Internet, available to the public and professionals alike, has a vital impact on various aspects of the current controversy over the safety of mercury/silver amalgam dental fillings.

The American Dental Association (ADA): The ADA may now be in a difficult, if not untenable, position. The prevailing ADA position is that patient exposure to mercury from amalgam dental fillings is harmless. The ADA currently promotes this position on its Internet site (dated 1995, without consideration of current published research), at the same time and contradictory to the ADA position, a major amalgam manufacturer is exhibiting its public warning.

Of major significance is the fact that the ADA has pleaded in a Court of Law that it has no legal duty of care to protect the public from allegedly dangerous materials used in dentistry, as it does not design, manufacture, supply or install amalgam fillings [see BPNL, 11(4), July 1995].

Meanwhile, the ADA has added to its Principles of Ethics and Code of Professional Conduct a provision declaring it unethical for a dentist to recommend the removal of clinically serviceable amalgam fillings to eliminate exposure to mercury [Section 1-J], a provision widely utilized by state dental boards. At the same time, the ADA Code contains a provision providing an "obligation" for dentists to inform on the results of their investigations when they are useful in safeguarding or promoting the health of the public [Section 4]. This is clearly a dilemma for dentists in regard to dental amalgam; dentists are unethical if they do inform and unethical if they do not inform patients of potential adverse effects to amalgam mercury!

Government Agencies: The influence of the ADA with government agencies is a matter of record; the ADA has been represented on amalgam "committees" established by government agencies and, arguably, is instrumental in the composition and conclusions of these committees. An example is the current proposal of the Agency for Toxic Substances and Disease Registry (ATSDR) to raise their Minimal Risk Level (MRL) standard for general population chronic exposure to mercury vapor by almost fifteen fold, and declare patient exposure to dental amalgam mercury to be harmless, based primarily on the position of the ADA [see following article].

The position of the Food and Drug Administration (FDA) is of particular interest, as FDA regulations specifically direct the Agency to rely on safety information on products that is provided by the manufacturer. So, if the information from the manufacturer is contrary to that from the ADA, the FDA must follow the manufacturer. The FDA currently has accepted and classified only "dental mercury (Class I)" and "amalgam alloy (Class II)", but not mixed amalgam. The FDA is now responsible for the information provided by Dentsply/Caulk, which contradicts a classification of Class I for dental mercury, and complicates their current consideration for classification of "dental amalgam."

Dental Boards: The Dentsply/Caulk public statement should have a profound effect on the attacks by dental boards on mercury-free dentists, many of whom have been brought before boards simply for providing information on potential adverse effects of amalgam mercury. The Boards have claimed that the information challenging the safety of amalgam constitutes fraud and misrepresentation. This position by the Boards is obviously now determined...
to be improper. The question now becomes: “Can dental boards legally discipline dentists for providing information that is publicly displayed by a major amalgam manufacturer?”

Perhaps as importantly, can dental boards allow dentists to provide information on amalgam safety that is contrary to information publicly provided by the manufacturer? Such conduct might legally be interpreted as “negligent misrepresentation.” It may very well be that the dental boards may now be obliged to ensure that all practicing dentists issue the amalgam contraindications and warnings to all patients! These are points that should be investigated by legal minds.

Dental Schools: In order to practice dentistry in most states, the dentist must have graduated from an “accredited” School of Dentistry. The “Accreditation” is a function of a committee of the ADA! So, the curriculum and policies of dental schools are dictated by the ADA. This is rather like the tail wagging the dog; it should be the other way around. This is, nonetheless, the case currently.

Now, dental schools are facing a serious dilemma. They are teaching the use of a product, and promoting the ADA position of safety of that product, in direct contradiction to public warnings by the manufacturer. It would seem that dental schools now have the obligation to instruct dental students on the amalgam warnings and contraindications. This would place them in direct opposition to the professional trade organization that accredits them!

It is now arguable that the ADA position on the safety of dental amalgam presents a conflict of interest to dental schools, in view of the requirement for accreditation by the ADA. The time has clearly come to establish dental school accreditation independent of the ADA.

The Media: Many, if not most, segments of the media provide information to the public on amalgam safety based on input from the ADA. Now, public information from the manufacturer contradicts the information they have been providing. The concept of responsible journalism dictates that the media now correct the misinformation that they are providing to the public. On the other hand, media entities such as “60 Minutes” and others are now vindicated. Their credibility would be reinforced by addressing the issue once again, with inclusion of the new information.

The Public: The public has open access to the Internet, so the Dentsply/Caulk information can be considered to be in the public realm, and an increase in public awareness might be anticipated. Denial of potential adverse effects from amalgam mercury could now be a serious problem for all members of the dental industry who claim that the product is harmless.

Dentists: All dentists must now acknowledge contraindications and potential adverse effects to amalgam fillings! It does not matter what the American Dental Association (ADA) says, the manufacturer has publicly issued warnings and contraindications for the product being used. Medically, the dentist will be bound to the information being publicly provided by the manufacturer.

It is also established that dentists are obliged to be familiar with and to be responsible for the information provided in MSDSs for products. Therefore, all dentists must be aware of the potential adverse effects of mercury vapor inhalation. They are especially responsible for the adverse effects occurring in the oral cavity; salvation, gingivitis, stomatitis, loosening of the teeth, and blue lines on the gums. Dentists must also be attentive to the potential effects on unborn and nursing babies, as their product use includes pregnant females and nursing mothers.

The specter of potential liability for adverse effects from dental amalgam must also be considered. Since the ADA has bailed out on potential amalgam liability, the FDA refuses to accept and classify the mixed dental amalgam actually implanted into patients, and the manufacturers now are issuing warnings (for their own legal protection), the full responsibility now rests with the practicing dentists! ADA members may now be well advised to consider their prevailing confidence in their trade organization.

Mercury-Free Dentists: The new development should provide valuable ammunition for dentists who feel a moral obligation to inform their patients of potential adverse effects from a product present in their mouths. The most important aspects of this are medico-legal, relating to obligations to the patient and experiences that may arise with dental boards.

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ATSDR WANTS TO REVISE MERCURY MRL, DECLARE AMALGAM TO BE HARMLESS!

The Agency for Toxic Substances and Disease Registry (ATSDR) of the United States Public Health Service has released a “draft for public comment” of their “Toxicological Profile for Mercury, August 1997.” These documents establish “Minimal Risk Levels (MRLs)” for general population exposure to hazardous substances, and must be reviewed every three years.

The last update to the mercury profile was pro-
vided in May of 1994 [TP-93/10]. In that document, the ATSDR lowered its MRLs for chronic and acute exposure to mercury vapor to 0.014 and 0.02 micrograms Hg/m³ air. Based on an adult daily respiratory intake of 20 m³/day, these were translated to 0.28 and 0.4 micrograms of mercury per day intake. The ATSDR then stated (page 125): “Thus, both MRLs are below estimated exposure levels from dental amalgam.” The ATSDR had based this on the conservative daily intake estimates of dental authors (1-5 mcg Hg/day), rather than the higher conclusions from mercury toxicology experts (10 mcg Hg/day mean).

The 1997 revision proposes raising the MRL for chronic exposure to mercury vapor to 0.2 mcg Hg/m³ air (a fifteen fold increase) and declares that patient exposure to dental amalgam mercury is harmless. The deadline for public comment had been set at 17 February 1998. Upon learning of this on 9 February 1998, the International Academy of Oral Medicine (IAOMT) and the Consumers for Dental Choice (CDC) project went to work. Within three days, serious challenges to the new ATSDR proposal were uncovered and submitted within the time limit. Further, a number of key individuals were able to obtain time extensions for public comment for themselves. The key areas of dissent are as follows.

Both ATSDR documents derived their MRL conclusion from the same study, Fawer et al., 1983, which was conducted for occupational exposure in workers using mercury. The 1997 document utilized an Uncertainty Factor (UF) of three (3) for conversion from a LOAEL (Lowest Observed Adverse Effect Level) to a NOAEL (No Observed Adverse Effect Level) [Appendix A], whereas the 1994 group utilized the more commonly used UF of ten (10). In addition, the 1997 evaluation did not convert from a mean occupational exposure duration of 15.3 years to the general population mean figure of 70. These two factors account for the fifteen-fold increase in the proposed new MRL for chronic exposure to mercury vapor.

These decisions in the new document appear to violate the published guidelines for ATSDR development of MRLs [FR 61(125):33511-20, 27 Jun 1996]. In addition, these guidelines establish the need to consider the most sensitive effects attributable to the hazardous material. The Fawer study investigated only "tremor", which is a late developing and insensitive marker for exposure to mercury vapor. These objections were formally provided to ATSDR, along with a request that special consideration be given to unborn and nursing babies.

Even assuming acceptance of the new ATSDR MRL, the position of the ATSDR on the safety of dental amalgam is in conflict with its own findings. Utilizing the ATSDR figure of 20 m³/day adult respiratory intake, the new MRL would correspond to an intake of 4 micrograms/day (20 x 0.2), without considering the mean absorption rate of 80% for inhaled mercury vapor (the figure would actually be 4.0 x 0.8= 3.2 mcg/day). Clearly, even the estimates of dental authors fall at or above the new MRL and cannot, therefore, be arbitrarily declared to be harmless! Further, the mean respiratory intake of children would be considerably less than 20 m³/day, thereby demanding special consideration.

Incredibly, the ATSDR’s new declaration of safety for amalgam mercury seems to be based on one sentence (draft page 188): “The American Dental Association (ADA) holds that amalgams are a safe, durable and cost effective restorative material.” The lack of credibility, without accompanying valid scientific documentation, was pointed out to ATSDR, as was the Internet information of Dentsply/Caulk and the 1996 contraindication advisory of Health Canada.

The IAOMT and CDC both sent letters of objection, with exhibits, to ATSDR within the time limit of 17 February 1998. The IAOMT also copied its objection to select members of two Oversight Committees of the United States Congress, calling for a Congressional Investigation of the amalgam controversy.

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DENTAL BOARDS RESPOND TO CONSUMERS FOR DENTAL CHOICE

Consumers for Dental Choice continues to present its petition for a "level playing field" for mercury-free dentistry before state dental boards. Charlie Brown or Jim Turner, working closely with consumer activists in each state, have appeared before the Boards of Arizona, Iowa, Louisiana, Montana, Ohio, and Wyoming.

Louisiana was the most recent appearance, and it has the hallmarks of a breakthrough. Lois Schnapp of New Orleans, the state DAMS director, organized a petition drive, securing some 700 names, and orchestrated a group of 10 consumers (including a physician at LSU) to appear with Brown. The Louisiana dental board agreed to study the issue and, at its next meeting, consider adopting a policy that would mirror the consumer petition as closely as feasible.

The Chairman of the Wisconsin Dentistry Examining Board stated in a letter dated 27 January 1998 that the board is: “aware that it may not utilize its disciplinary authority in a fashion that inappropria-
ately stifles appropriate and innovative treatment modalities in dentistry." Additionally, the Chairman stated that: "Reasonable and competent dentists may, and often do, disagree on patient treatment modalities...The fact that there are different legitimate 'schools of thought' regarding proper treatment, each based upon reasonable and articulate factors, does not lead to the conclusion that the members of one school are competent and the other not."

These indisputable words support the case for a level playing field in a manner that we hope all dental boards will adopt. *Consumers for Dental Choice* will continue to advocate diligently to persuade every dental board to have the same conviction against fraudulent dentistry while maintaining an intelligent perspective on different dental care modalities.

**BIO-PROBE COMMENT:** *Consumers for Dental Choice* has made phenomenal progress in their initiative to ensure the rights of patients and of mercury-free dentists. They CANNOT continue to do so without the financial support of those that are benefitting from the effort. Please send contributions to: Consumers for Dental Choice, 1424 16th Street, NW, Suite 105, Washington, DC 20036. T: (202) 462-8800; F: (202) 265-6564.

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**SCIENCE**


**ABSTRACT:** The nature of the toxic influence of mercury and its effect on the cardiovascular system are not well understood. In chronic poisoning with metallic mercury and its compounds, circulatory disorders have been observed in patients. The problem whether metallic mercury damages the endocardium and myocardium directly or indirectly through vascular changes or vegetative system stimulation remains unsolved.

A study was undertaken in which a group of experimental rabbits was exposed to the chronic action of mercury vapors by inhalation and compared with a control group. Before the experiment and towards its end, ECG were taken and 24-hr urinary excretion of mercury was determined in both groups. After 3 months the animals were autopsied, and fragments of myocardium, papillary muscles, endocardium and ascending aorta were taken for histopathologic investigation.

In the poisoned animals, the ECG tracings showed bradycardia. Morphologic lesions had the character of thrombosis in small and medium caliber blood vessels, necrotic foci, thickening of the endocardium of the papillary muscles and perivalvular region and endothelial proliferation with inflammatory foci. The results indicate that, besides influencing the vegetative system, mercury vapor damages the endocardium directly and produces vascular lesions resulting in myocardial changes.

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**ABSTRACT:** A cohort of 1022 consecutive singleton births was generated during 1986-1987 in the Faroe Islands. Increased methyl mercury exposure from maternal consumption of pilot whale meat was indicated by mercury concentrations in cord blood and maternal hair.

At approximately 7 years of age, 917 of the children underwent detailed neurobehavioral examination. Neuropsychological tests included Finger Tapping; Hand-Eye Coordination; reaction time on a Continuous Performance Test; Wechsler Intelligence Scale for Children Revised Digit Spans, Similarities, and Block Designs; Bender Visual Motor Gestalt Test; Boston Naming Test; and California Verbal Learning Test (children).

Clinical examination and neurophysiological testing did not reveal any clear cut mercury related abnormalities. However, mercury related neuropsychological dysfunctions were most pronounced in the domains of language, attention, and memory, and to a lesser extent in visuospatial and motor functions. These associations remained after adjustment for covariates and after exclusion of children with maternal hair mercury concentrations above 10 micrograms (50 nmol/g).

The effects on brain function associated with prenatal methyl mercury exposure therefore appear widespread, and early dysfunction is detectable at exposure levels currently considered safe.

**BIO-PROBE COMMENT:** This publication of the widely discussed Faroe Islands study should have dramatic impact on evaluation of mercury exposure to unborn babies. Obviously, the adverse effect is not detectable at birth, and shows a dramatic impact on quality of life for the affected individuals. It should be kept in mind that methyl mercury and mercury vapor are the two forms of mercury that readily penetrate cell membranes and
accumulate in tissues of unborn babies. Methyl mercury is derived primarily from consumption of fish and sea food, whereas the primary contribution of mercury vapor to human body burdens comes from amalgam dental fillings.

A Multidisciplinary Clinical Study of Patients Suffering From Illness Associated With Mercury Release From Dental Restorations: Psychiatric Aspects.

B’agdahl-Strindlund, M; Ilie, M; Furhoff, AK; Tomsen, Y; Larsson, KS; Sandbohr-Englund, G; Torstensen, B; Wretlind, K.


ABSTRACT: The aim of this study was to map the psychological/psychiatric, odontological and medical aspects of patients with symptoms allegedly related to the side effects of mercury in dental fillings. A total of 67 consecutive patients and 64 controls matched for age, sex and residential area were included in the study.

The most striking result was the high prevalence of psychiatric disorders in the patients (89%) compared to the controls (6%), predominantly somatiform disorders. The personality traits differentiating the patients according to the Karolinska Scales of Personality (KSP) were somatic anxiety, muscular tension, psychasthenia and low socialization. More patients than controls showed alexithymic traits. The prevalence of diagnosed somatic diseases was higher, but not sufficiently so to explain the large difference in perceived health.

The multiple symptoms and signs of distress displayed by the patients could not be explained either by the odontological data or by the medical examination. Our data indicate that the patients show sociodemographic and clinical patterns similar to those of somatizing patients. The medicalization of the suffering of these patients and the neglect of psychiatric problems prevent the use of appropriate psychotherapeutic approaches.

BIO-PROBE COMMENT: The authors of this study seem to be concluding that the physical (somatic) health problems of these patients are caused by psychiatric disorders, rather than mercury exposure from their amalgam dental fillings. They are overlooking a vital fact published in the public realm; chronic exposure to mercury vapor in low concentrations has “induced psychiatric symptoms in humans.” [see mercury MSDS, lead article, this issue] As this fact is common knowledge, the authors of this study should take it into consideration before arriving at conclusions!

Mercury vapor release during amalgam removal using air abrasive instruments

Shiller B, Parker, WS. (Bert Schiller & Associates, Inc. Bloomfield Hills, MI, American Dental Technologies (ADT), Southfield, MI.


ABSTRACT: The purpose of this study was to determine the potential for mercury vapor release during dental amalgam removal with high-speed air abrasive instruments. Extracted human teeth containing standard dental amalgam were mounted in the lower jaw of a mannequin set up in a modern dental operatory. Handpiece nozzles of two air abrasive instruments were held 1-3 mm from the target amalgam site for 60 seconds during amalgam removal. A Jerome Mercury Vapor Analyzer Model 431X was used to measure mercury vapor levels at 12-second intervals. Before testing background levels of mercury vapor were measured to be zero.

<table>
<thead>
<tr>
<th>Instrument</th>
<th>Powder</th>
<th>Nozzle Size</th>
<th>Air pressure</th>
<th>Powder Flow Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>KCP 1000 (KCP/ADT)</td>
<td>50 um</td>
<td>0.018 inch</td>
<td>100 psi</td>
<td>0.04-0.1 g/min</td>
</tr>
<tr>
<td>Mach 5.0 Plus (Kreativ)</td>
<td>27.5 um</td>
<td>0.014 inch</td>
<td>112 psi</td>
<td>0.04-0.1 g/min</td>
</tr>
</tbody>
</table>

Mean levels were significant (P < 0.05) in all test sets, except set KCP-3, as tested by ANOVA. Mean mercury vapor levels detected in the operator’s breathing zone exceeded the Ceiling Limit for mercury vapor of 0.1 mg/m³ currently enforced by OSHA in 6 of 7 test conditions. Within each set of test conditions there were readings above this OSHA Ceiling Limit. Mercury levels generated during amalgam removal with high-speed air abrasive instruments could pose a health hazard to dental personnel. (Supported by ADT).

The Effect of Bleaching on Mercury Release from Amalgam.

Robertello, FI; Coleman, AK; Dishman, MV; Sarrett, DC.


ABSTRACT: Bleaching of teeth to improve appearance is a popular esthetic treatment. Few studies have considered the effect of bleaching chemical on mercury release from dental amalgam. The aim of this study was to test the hypothesis that three carbamide peroxide bleaching products, Opalescence (O), Nite White (N), and Platinum (P) alter mercury release from amalgam (Valiant PhD).
Sixty uniform amalgam specimens were prepared in ACRYLITE® clear acrylic blocks. After aging for one week at 37 degrees C, the specimens were placed in individual polystyrene jars containing 20 mL of sterile saline, and divided into three groups A, B, and C. Specimens were bleached in cycles by removing them from the jars, blotting to remove excess moisture, and covering with either O, N, P, or saline control (C). After 8 hours, the specimens were cleaned with a toothbrush, rinsed with de-ionized water, and returned to the saline. Group A was tested for mercury release after 8 hours of bleaching, Group B after 40 total hours of bleaching, and Group C after 80 total hours of bleaching. Mercury testing was done by first reducing the mercury in solution in each jar with 1 mL of SnCl2, and then testing the remaining headspace with a Gold Film Mercury Vapor Analyzer, Model 411 (Arizona Instruments).

ANOVA indicated there was no significant difference between the bleaches and controls at 8 and 40 hours. However, at 80 hours, O caused significantly more mercury release (p<0.05). Means at 80 hours in mg/m² were: O= 0.98 +/- 0.36; N= 0.58 +/- 0.20; C= 0.52 +/- 0.14; P= 0.47 +/- 0.11. It is concluded that Opalescence increases the mercury release from Valiant amalgam following 80 total hours of bleaching.

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Mercury dissolution from dental amalgams in solutions of different aggressiveness.
Mark M. (Georgia Inst of Technology, Atlanta, GA)

ABSTRACT: Mercury released from dental amalgams dissolves from the γl (Ag-Hg-Sn) phase after diffusion through a surface film of tin oxide. Aggressiveness of the electrolyte is expected to change the thickness and nature of the oxide film and thus also the mercury dissolution rate. In this study two commercial dental amalgams, a low-copper, γl-containing alloy (code SAF, Safargam, Safina, Czech Republic), and a high-copper, γl-containing alloy (code TYT, Tytin, Kerr Corp., U.S.A.), were exposed at 37°C to distilled water (pH 6.5), synthetic saliva (1.5 g/L, KCl, 1.5 g/L NaCl and 10/01 g/L lactic acid (pH 2.25). The solutions were analyzed for mercury after 24 h. The corrosion current density also was measured for each amalgam in each electrolyte. The dissolution results (µg/cm².d) for 15 replicate tests showed lowest mercury loss in synthetic saliva (TYT 0.10, SD=0.02; SAF 0.17, SD=0.02), followed by distilled water (TYT 0.17, SD=0.04; SAF 0.40, SD=0.1) and NaCl + lactic acid, pH 2.25 (TYT 1.26, SD=0.18; SAF 2.26, SD=0.06). Differences be-

between means for different solutions were significant (p=0.05) for each alloy, and differences between means for the two alloys were significant (p=0.05) for each solution. Analysis of the dissolution and corrosion rate results suggests that in synthetic saliva and distilled water the oxide film was stable, and that it was thinner in distilled water, resulting in a higher mercury release rate, controlled by diffusion through the film. In the acidic NaCl + lactic acid solution the dissolution rate of the oxide film was high, resulting in the highest loss of mercury, attributed to dissolution of mercury present in the film and possibly accelerated dissolution from the γl phase surface. The results show that the highly acidic conditions in the oral cavity substantially accelerate the mercury release. This study was supported by NIH/NIDR Grant DE 07754.

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Estrogenic activity of combined administration of two possible dental resins.
Cherry BA*, Moon PC, and Kalimi MY. (Medical College of Virginia, Virginia Commonwealth Univ, Richmond, VA).

ABSTRACT: Previous studies have shown that resins found in many dental resin-based composites and sealants may have estrogenic activity and this activity in vitro is 1000-2000 times less potent than estradiol. To determine the estrogenic activity of combined dental resins in vivo we used a dose 10 fold that of estradiol and measured organ weights, total cholesterol, high density lipoproteins (HDL), and triglyceride levels in animals exposed to both separate and combined administration of the dental resins. Twenty overiectomized Sprague-Dawley rats were divided into 5 groups. Animals were intraperitoneally injected daily for 28 days with 0.1ml containing the test resins dissolved in dimethyl sulfoxide (DMSO) at the following doses: Group I: 0.1ml DMSO (negative control), Group II: 20 ug 17b-estradiol (positive control), Group III: 0.2mg Bisphenol A (BPA), Group IV: 0.2mg Bisphenol A Diglycidyl Ether Dimethacrylate (Bis-GMA), Group V: 0.2mg BPA + 0.2mg Bis-GMA. Group II showed increases in uterine weight concomitant with decreases in heart weight and greater levels of HDL when compared with Group I. Furthermore, Group V showed increases in uterine weight versus Group I. These differences were significant at P<0.05 as tested by ANOVA and TUKEY. We conclude that the combined administration of BPA and Bis-GMA has a stimulating effect on uterine weight suggestive of an estrogenic action. This study was supported by the A.D. Williams Research Fellowship Award.

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FORUM
International Academy of Oral Medicine and Toxicology
IAOMT 1998 MID-YEAR MEETING
DATE: 13-14 March 1998 (Friday-Saturday).
SITE: Durham, North Carolina.


HOST/MEETING REGISTRATION: Michael D. Fleming, D.D.S. 1901 Hillandale Rd., Suite A, Durham, NC 27705. T: (919) 471-1064. IAOMT members= $395.00; non-members= $495.00. Registration includes one additional (spouse or staff member).

FRIDAY PROGRAM:
☐ Murray J. Vimy, DMD: “Scientific Review of Dental Amalgam Biocompatibility.”
☐ Woodhall Stopford, MD, MSPH: “Peripheral Neurologic Effects From Acute Mercury Exposure.”

IAOMT WORKSHOPS: Friday afternoon, 13 March, 1:15-5:00pm. [designates required Core Curriculum Course for IAOMT Accreditation, others apply to elective requirements.]
☐ Michael F. Ziff, DDS: “Mercury 101/102.”
☐ Marcia A. Basciano, DDS/Paul G. Rubin, DDS: “Environmental Aspects of Dental Mercury.”
☐ David W. Regiani, DDS: “Dental Corrosion.”
☐ Phillip P. Sukel, DDS/Richard D. Fischer, DDS: “IAOMT Standards of Care.”
☐ J. C. Pendergrass, PhD: “Biodental Toxicology.”
☐ Ronald M. Dressler, DDS: “The Use of Biocalex in Endodontic Therapy.”

SATURDAY PROGRAM:
☐ Agnes Koubi, DDS: “Oral Toxicology: The Clinical Approach.”
☐ Michael Aschner, PhD: “In Utero Mercury Vapor Exposure and Metallotheinein Expression in Rat Brain and Astrocytes.”
☐ Alfred A. Nickel, DDS, MS: “Local Anesthetic Toxicology.”

SPECIAL EVENTS:
Welcome No-Host Reception; Thursday, 12 March, 7:30pm.

DMPS Study: Dr. H. Vasken Aposhian; Group A participants arrive by, Wednesday 11 March; Group B participants on Thursday, 12 March 1998. Neurologic function compared to body burden of mercury being investigated. Volunteers needed for this important research study!

IAOMT Board Meeting; Friday, 13 March, 6:30pm (all members invited). Participants: Please do not eat fish/seafood for at least one week prior to study!

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IAOMT 1998 ANNUAL MEETING
DATE: 10-12 September 1998.
SITE: Colorado Springs, CO.

HOTEL/ROOM RESERVATIONS: Antlers Doubletree Hotel, 4 South Cascade, Colorado Springs, CO 80903. T: (719) 473-5600; F: (719) 389-0259. Rate: $115.00, single or double.

MEETING REGISTRATION: Dr. Michael F. Ziff, Executive Director, P.O. Box 608531, Orlando, FL 32860-8531; T: (407) 298-2450; F: (407) 298-3075. Lunches and Banquet included in meeting registration; rate to follow.


SPECIAL EVENTS: Welcome No-Host Reception: Thursday, 10 September, 7:30pm. Annual Membership Meeting: Friday, 11 September, 6:30pm; Annual Banquet: Saturday evening, 12 September.

If you are a mercury-free dentist or are contemplating going mercury-free, you need to join the IAOMT. The IAOMT has helped fund or has been the catalyst for much of the current scientific research demonstrating that dental amalgam is not the benign dental material that 150 years of use and the ADA would like you to believe. Furthermore, the IAOMT is doing something about Standards of Care and Protocols that protect you, your staff and the patient. For membership information contact Dr. Michael F. Ziff, D.D.S. FIAOMT, P.O. Box 608531, Orlando, FL 32860-8531, Tel: 407-298-2450 and Fax: 407-298-3075.