THE PRODUCT SAFETY SOCIETY NEWSLETTER

May, 1988

Vol 1, No. 4

CHAIRMAN'S MESSAGE
by RICHARD PESCATORE

Page 2

TECHNICALLY SPEAKING
by RICH NUTE

Page 3

TRACEABILITY OF PLASTIC MATERIALS
by Lin R. Johnson

Page 5

CHAPTER ACTIVITY REPORTS

Page 7

EDITORIAL

Page 12

The Product Safety Society Newsletter is published monthly by the Santa Clara Valley Chapter of the Product Safety Society. Comments and questions about the Newsletter may be addressed to Product Safety Society Newsletter, c/o Qume Corp, Attention: Roger Volgstadt, 500 Yosemite Drive, Milpitas, CA 95035.

This Newsletter is prepared on Qume Corporation's PageLINK Controller and LaserTEN Plus printer. The editor wishes to extend a special thanks to the following individuals for their efforts in preparing this Newsletter: Claudette Oberdisk, John McBain (SCV PSS), Walt Hart and Al Van Houdt (NWC PSS), Jim Norgard (NEC PSS), and Charlie Bayhi (LAC PSS).
In last month’s Newsletter, I discussed membership requirements for the IEEE. In prior months, I encouraged you to join the IEEE. By now, I assume that you have your membership number in hand. (But if you don’t, it’s not too late. Join today!) So, what is the next step?

We need your support. If you believe in what we are trying to do, sign our petition and return it to us as soon as possible. We presently have the minimum number of signatures needed to petition the IEEE for sanction as a member Society. However, our probability of a successful petition will increase significantly if we can double or triple this number.

If you have already signed our petition thank you. If you haven’t yet signed our petition, please do so now.

For all of you, please get three of your friends or colleagues who are also IEEE members to sign the petition and send it to us.

Many of you have indicated your excitement about the formation of the Product Safety Society and its planned affiliation with the IEEE. We need your active participation to become successful. Our plan is to formally present our petition to the IEEE in early summer (assuming we get signatures by then). Please spread the word.

Enough of the soap box. I am on my way out of town again (vacation this time), but feel free to call Brian Claes (408-725-5173) or John McBain (408-447-0738) if you have any questions.

Now let’s have fun. Hope to see you at a meeting soon.

Rich Pescatore
Chairman
Hello from Vancouver, Washington, USA!

Perusing my new CSA Bulletin 1402A I found Clause 5.11, "Energy Discharge". This is new to 1402A, so I thought I’d look further.

1. **Allowed values of capacitance**

Part (b) specifies that the stored energy available at the pins of the plug shall not exceed 20 Joules when calculated as follows:

\[ J = 5 \times 10^{-7} \times C \times V E^2 \]

where \( c = \) capacitance in microfarads and \( F = \) Measured peak voltage

Being curious, I solved for \( C \) to find the maximum value of L N capacitance allowed. (Remember, 1402A applies to the energy available between the pins of the plug.)

\[ C = \frac{J}{5 \times 10^{-7} \times V E^2} \]

For a 120-volt input:

\[ C = \frac{20}{5 \times 10^{-7} \times (120 \times 2E1/2)E2} \]

or \( C = 1,388.9 \) microfarads.

For a 250-volt input:

\[ C = \frac{20}{5 \times 10^{-7} \times (250 \times 2E1/2)E2} \]

or \( C = 320 \) microfarads.

No problems. Nobody EVER uses these values for EMI filters.

2. **Capacitive reactance.**

These are large capacitors. And, they are directly across the ac line, either phase-to-phase or phase-to-neutral. (Remember, the 1403A requirement applies to the pins or the attachment plug.) I thought I would calculate the capacitive reactance for each of these capacitors:

\[ X_c = \frac{1}{2 \pi f C} \]

For the 1388.9 \( \mu \)F capacitor,

\[ X_c = \frac{1}{2 \pi \times 60 \times 1388.9 \times 10^{-6}} \]

or \( X_c = 1.909 \) ohms

and, for the 300 \( \mu \)F capacitor,

\[ X_c = \frac{1}{2 \pi \times 60 \times 320 \times 10^{-6}} \]

or \( X_c = 8.289 \) ohms

These are very low values of capacitive reactance for across-the-line application. Reactive current is:
TECHNICALLY SPEAKING, Continued

\[
\frac{E}{I} = \frac{120}{1.909} \quad \text{or} \quad I = 62.86 \text{ amps reactive.}
\]

A 120 Volt, 20 Amp branch circuit can’t supply this current!

3. Line rectification — capacitor input.

Maybe the concern is for the energy stored in the capacitors of an off-line rectifier for a switching-mode power supply.

However, there are rectifiers between the capacitors and the pins of the plug. These rectifiers effectively isolate the capacitors from the plug. No energy is available at the plug.

Maybe the concern if for the single-fault condition (although this is not apparent from the statement) where one diode is shorted.

Here we have two choices: either full-wave rectifier circuit, or half-wave rectifier circuit.

For a single-phase power line, the only possible full-wave rectifier configuration is that of a bridge circuit. Anyone diode short in a bridge circuit results in full and immediate discharge of the capacitors. (The reader is invited to confirm this.)

Thus, only a half-wave rectifier is a problem. The rectifier would have to fail at the instant the plug is pulled from the socket. (Again, the reader is invited to confirm this.) Off-line half-wave rectifiers simply are not used to any extent in data processing equipment.

4. 42.4 volts peak limitation.

In part (a), one second after disconnection, the voltage between the pins of the plug must not exceed 42.4 volts. So, now we are talking about 20 joules at 42.4 volts. Obviously, this is not a shock hazard.

What kind of hazard did the sub-committee have in mind?

Well, for drill, we can again calculate the maximum value of allowed capacitance. This time using 42.4 volts:

For 42.4 volts:

\[
C = \frac{20}{5 \times 10^{-7} \times (42.4)^2}
\]

\[C = 22.249 \text{ microfarads.}\]

Across a power line? Not likely in data processing equipment.

5. Conclusion.

Here’s a test and calculation we’ve got to do for EVERY CSA 220 power supply, and EVERYone will pass.

The l402A cover states the bulletin was prepared in consultation with the 220 committee. There have got to be some EE’s on board: Where was their analysis of the requirement? Aren’t EE’s supposed to be thorough and responsible for the validity of a technical requirement?

Comments to the above are welcome. Please address your response to the attention of the Product Safety Society Newsletter. 500 Yosemite Drive, Milpitas, CA 95035
Traceability of Plastic Materials — A UL Requirement;

An Organized Approach for Compliance

The following article is the first in an important two part series on the necessity of maintaining traceability of plastic components. The reader is urged to evaluate his or her own company's traceability program in light of the authors comments.

Lin R. Johnson, P.E.
Hewlett Packard
Ft. Collins Systems Division
Ft. Collins, CO 80525

UNDERSTANDING TRACEABILITY

1.0 Introduction:

An end product manufacturer such as Hewlett Packard/Ft. Collins Systems Division obtains Underwriters Laboratories (UL) approval on products as a valuable marketing feature. The UL approval process for a particular product is extensive.

1.2 The UL Scenario:
The Product Evaluation; The Approval; The Follow-up

When an end product manufacturer seeks approval of a product a formal evaluation of that product is begun with UL. The formal evaluation examines and tests the product for compliance with a specific UL standard. Because of the different nature of and intended use of different products, different standards are available. An end product manufacturer, working with UL, decides which standards are appropriate and the product is thus evaluated to that standard (Business machines and equipment involved with Information Processing are beginning to be evaluated to UL 478 5th edition. UL 478 5th makes reference to other standards such as UL 746C for polymeric materials which in turn references UL 94 also for polymeric materials. Thus these standards become part of the evaluation process on specific issues.)

During the formal evaluation, a product is evaluated and tested for many safety related topics. Relative to plastics, an example of one such topic is the product’s enclosure. The enclosure, in addition to its aesthetic value as the cabinet for the product, must protect the operator from access to electrical and other hazards within the machine. When made from plastic, the enclosure must meet specific criteria for flammability, strength, non-brittleness, etc. During the formal product evaluation, the adequacy of the particular enclosure design and the specific material selection(s) is evaluated for suitability by the UL investigating engineer.
Once evaluated and approved, the manufacturer is NOT at liberty to deviate from the design specifications without prior re-investigation and approval by UL.

When the product has been determined to be in compliance with the appropriate standard, the details of materials and construction of the sample product are documented. This documentation is known as the UL Follow-up Procedure and is the basis to insure that the safety sensitive characteristics of the product remain unchanged.

UL follow-up Services Department has the responsibility for periodic audits of the manufacturers production. UL Follow-up Services uses the Follow-up Procedure as their basis of determining that the product continues to be manufactured the same as the approved sample product. Follow-up Services is involved as long as the “UL approved” label is used on that product.

Utilizing the Follow-up Procedure, the Follow-up Services Inspector performs a verify” function ONLY. The Follow-up Services Inspector does NOT evaluate the suitability of a particular design. Only when formally evaluated by UL Engineering is a determination made as to the suitability of a particular design or material selection. Often there are several ways to describe the safety sensitive characteristics which are detailed in the Follow-up Procedure. Care must be taken by the end product manufacturer to insure that the descriptions which are used are accurate and that any alternate materials or constructional details are included exactly as the product will be or could be manufactured. Any changes, even though the wording of particular described characteristic may be only slightly different, must be re-evaluated prior to any production change. Follow-up Services does NOT re-evaluate a particular design; they only verify what is in the Follow-up Procedure.

If a discrepancy is found by the Follow-up Inspector between what is produced and what is described in the Follow-up Procedure, the right to use the 04UL” label can be immediately revoked. This typically translates to an immediate hold on shipments and possible rework of finished products.

1.3 The Follow-up Procedure: How It Relates to Plastics and Traceability.

A discrepancy commonly encountered by the inspector with plastics is “unable to verify.” This means that a particular plastic component, as described in the Follow-up Procedure, specified a particular plastic but it’s actual use is uncertain. The Follow-up Services Inspector will ask the end product manufacturer to prove that the particular plastic, as described, was utilized to produce the particular plastic component. If the end product manufacturer is unable to do this by one of the techniques which is described in Section 2 of this paper, the plastic specified for that component is said to NOT BE TRACEABLE to what was really used.

Next month, Lin will continue with the second part of this article, discussing the safety properties of plastic parts and suggesting several techniques for providing traceability.
CHAPTER ACTIVITY REPORTS

SANTA CLARA VALLEY CHAPTER REPORT

The April 26 meeting was called to order by the Vice-Chairman, Brain Claes, who reviewed the Agenda and received brief Committee reports.

Secretary (John McBain) — The UL 478 draft standard based on IEC 950 has been sent out. If you have not received a copy, then contact UL. Petition signatures are over 100 now, but we need as many more as possible to strengthen our application to the IEEE. Please collect and send in more signatures of IEEE members!

Membership (Scott Barrows) — We have a proposal for membership card but would like help from those of you with some artistic talent in designing a card and logo for the Product Safety Society.

Constitution (Mike Harris) — The draft Chapter Constitution is being typed now. Members of the IEEE CHMT (Components, Hybrids, and Manufacturing Technology) Society expressed support for our efforts at a recent meeting.

Chapter Communications (Roger Volgstadt) — The newsletter is doing well, but could use more contributed articles, letters, and cartoons. A regular technical columnist (Rich Nute) has started, but other contributors are very welcome to send in material or to call Roger at 408-942-4020.

Program (Brian Claes) — The programs for the rest of the year are being planned, but we still want to hear from members about possible topics and guest speakers. One proposal is to have a less structured meeting without a guest speaker to discuss various certification and product safety problems. Any comments from members? The program for the next meeting should be announced in the Newsletter when the guest speaker is confirmed.

The technical topic at this meeting was “Warning Labels”. Unfortunately, part of the program, an excellent videotape called “Warning Signs”, had to be postponed until the May meeting because of technical difficulties. The guest speaker, Al Hughes of FMC, chairman of the ANSI Z535.4 subcommittee, presented and discussed the new draft American National Standard ANSI Z535.4, “Product Safety Signs and Labels”.

Copies of the draft were available to attendees, but the talk covered background as well. For example, four points that warning labels should always consider are (1) the nature of the hazard. (2) the seriousness of the hazard, (3) how to avoid the hazard, and (4) the consequence of not avoiding the hazard. One comment from the question session was that other ANSI Standards could be expected to start using the labelling specifications in this Standard as time goes by.

--continued--
Santa Clara Valley Chapter Report, Continued

The next meeting will be on Tuesday, May 24, at 7:00 pm at Apple Computer in Cupertino, 20525 Mariani Avenue, on the corner of DeAnza Blvd. (just south of the De Anza exit on Hwy 280). Please ignore the address given on the April meeting agenda. We will be having our first Double Feature: the topics will be “Warning Signs”, the slightly delayed but “must see” videotape, and “Hi-Pot Testing”, with a guest speaker from the Rod-L Company.

PLEASE NOTE that the videotape will show BEFORE the meeting, starting at 6:45 pm, and AFTER the Rod-L presentation is over. And be sure to ask Ken Warwick about the popcorn! See you there!

NEWS FROM COLORADO:

Participation in the Product Safety Society is growing in Colorado. Several people have asked to be added to our mailing list this month, reports Steve Tarket. He is still acting as a contact person for interested people and would be glad to hear from those wanting to start a PSS Chapter somewhere in the Denver area. So don’t wait!

Contact: Steve Tarket (M/S 65)
3404 E. Harmony Road
Ft. Collins, CO 80525
telephone 303-229-2481; Fax 303-229-2692

NEWS FROM SOUTHERN CALIFORNIA:

Attention all Product Safety personnel in the Los Angeles area!!! The Product Safety Society contact person mentioned in last month’s Newsletter, Charlie Bayhi of MAI Basic Four, is taking the plunge. He is organizing a “Chapter Start-Up Meeting” for the evening of Monday, June 6, 1988, 7:00 pm at MAI Basic Four (See enclosed flyer and map).

Besides some organizational discussion, the meeting will include a short technical presentation, “Witness and Self-Certification Programs”. There may be some real time and money saving advantages if you qualify for these safety agency programs, as many companies have already discovered.

So reserve this evening for meeting with other product safety professionals (and probably some old friends, too). This is a great chance to hear an interesting and useful presentation, encourage professional activities within the product safety community, and have a good time - all in the same evening!

Contact: Charlie Bayhi (M/S 303)
14101 Myford Road
Tustin, CA 92680
Telephone: 714-730-2556; Fax: 714-730-3185
SOUTHERN CALIFORNIA CHAPTER
of the
PRODUCT SAFETY SOCIETY

Monday June 6, 1988

7:00 PM

Presentation -- Witness and Self Certification Programs

UL -- COMPASS Program
   Product Submittal Agreement
   Fixed Deposit Agreement
   Manufacturer’s Test Data

CSA -- Category Certification
   Fixed Deposit License
   Shared Certification

Directions - Take the Myford Road Exit from 1-5
Proceed to the Guard Station at the MAI Basic Four Entrance at 14101 Myford Road.
Adise the Guard that you are attending the Product Safety Society Meeting. He will direct you to the meeting in Bldg. 3
Northwest Chapter of PSS News

On April 28, 1988, the Pacific Northwest Chapter of the Product Safety Society convened another conference call meeting to discuss its upcoming meeting of June 29, 1988. The meeting at Fluke Mfg. Co. in Everett, WA (see map below) will feature speakers from HP and Fluke discussing Domestic and European Product Liability. There will also be a technical demonstration regarding Line Transient Surge Testing. Following the meeting, there will be an informal, no host dinner and social event. The meeting will start at 1:00 pm and dismiss at about 5:00 pm, followed by the dinner.

Attendees of either the meeting and/or dinner are requested to complete and return the RSVP form on the next page or call Walt Hart at 206-356-5177.

Additional plans were made for future meetings. Specifically, an October 19th meeting was planned at Tektronix in Beaverton, OR. A speaker is still being sought with expertise in the area of primary circuit components. Another meeting is also scheduled for sometime in February, 1989, again at Fluke Mfg. Co. in Everett, WA. The subject for the February meeting will be on transformers.

The planning meeting also discussed finances, such as covering the cost of speakers, newsletter mailings, etc. More information will be needed before the officers can formulate a plan. Lastly, the Pacific Northwest Chapter has requested its members to fill out and return the questionnaire on the next page so that the program committee officers can properly address its members interests.

Questions or comments concerning activities in the Pacific Northwest can be addressed to:

Al Van Houdt
Product Safety Engineer
SpaceLabs, Inc.
206-882-3700
Northwest Chapter Questionaire

Name(s): ________________________________________________________________

(We) will be attending the following: ___ Meeting ___ Dinner on June 29, 1988.

Return form to: Mr. Walt Hart
                Product Safety Manager
                John Fluke Manufacturing Co., Inc.
                6920 Seaway Blvd.
                Everett, WA 98206

Those individuals involved in the Pacific Northwest Chapter of the Product Safety Society are urged to review the following list of proposed topics and prioritize each according to your interests. An agenda will be compiled and sent to the chapter through your chapter’s newsletter. Please complete the form and return it to the address shown above.

<table>
<thead>
<tr>
<th>Priority</th>
<th>Subject</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Topic Presented by UL Staff: ____________________________</td>
</tr>
<tr>
<td></td>
<td>Topic Presented by CSA Staff: ____________________________</td>
</tr>
<tr>
<td></td>
<td>Topic Presented by TUV Staff: ____________________________</td>
</tr>
<tr>
<td></td>
<td>European Approvals and Strategy: __________________________</td>
</tr>
<tr>
<td></td>
<td>South American Approvals and Strategy: ____________________</td>
</tr>
<tr>
<td></td>
<td>Presentation by ___ on the Topic of: ____________________</td>
</tr>
<tr>
<td></td>
<td>Safety Engineering Topic: ______________________________</td>
</tr>
<tr>
<td></td>
<td>Safety Engineering Topic: ______________________________</td>
</tr>
<tr>
<td></td>
<td>Quantitive Hazard Assessment Techniques __________________</td>
</tr>
<tr>
<td></td>
<td>Topic: Human Factors, Safety -- Hardware: ________________</td>
</tr>
<tr>
<td></td>
<td>Human Factors, Software: ________________________________</td>
</tr>
<tr>
<td></td>
<td>Other Topics: __________________________________________</td>
</tr>
</tbody>
</table>

**NEWS FROM NEW ENGLAND**

The New England Product Safety Society promises BIG Things for the future. Announcements were sent out in late April to 1500 people in the product safety industry in the greater Notheast area. Response has been very good. Most people are pleased “... that someone finally got around to organizing this group”.

The first organizational meeting is scheduled for May 25, 1988 at 7:00 pm, and their own local newsletter will be published in Mid-June.

Petitions are being received supporting the IEEE affiliation. Mr. Norgaard will be providing an agenda of speakers and the results of their first meeting in the next issue of the *Newsletter*. Questions about New England’s activities may be addressed to:

Mr. James R. Norgaard  
New England Product Safety Society  
629 Massachusetts Ave.  
Boxborough, MA 01719  
617-263-2662  

---

**EDITORIAL**

Being part of a large group is really nice sometimes. All you need to do is show up, greet those you know, meet new friends and enjoy the planned activities. Of course, a large group does have its drawbacks. One is that several may have a calm assurance that whatever needs to be done will be done by someone else. Please allow me to encourage you to be that someone else in your local Product Safety Society this year.

Here at the “Monthly Gazette”, there is no mild mannered Clark Kent, sorting through mountains of news items, presenting its readers with the hottest Safety Society News. Instead, a few individuals take some time each month preparing what we think you want to know. To be a success, and easier on each person involved, we need more people who would love Desk Top Publishing, organizing and preparing articles, obtaining cartoon syndicate approvals, contacting officers, and in many ways, being the main channel for Product Safety Society Information. Sound interesting? Please contact either myself or any of your local officers on how to serve this growing society.

Roger Volgstadt  
Communications Committee
PETITION FOR THE ESTABLISHMENT OF AN IEEE SOCIETY

Date________________________

We, the undersigned, who are currently members of the IEEE, hereby petition for approval to form a Product Safety Society affiliated with the IEEE. The proposed field of interest, scope and objectives of the Product Safety Society are shown on the back of this form in the Charter and Strategy statements.

<table>
<thead>
<tr>
<th>Signature of Petitioner</th>
<th>Membership Grade and Number</th>
<th>Printed Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>11)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The following individual is serving as Organizer for the Society.

Richard L. Pescatore, P.E. 
M/S 42LS 
19447 Pruneridge Avenue 
Cupertino, CA 95014 U.S.A. 

(tel. 408-447-6607)
PRODUCT SAFETY SOCIETY

CHARTER

The Product Safety Society is an organization concerned with the safety of electronic products. Its members strive to advance the knowledge and awareness of product safety through:

* Study of product safety engineering principles and applications.

* Promotion of a consistent understanding and interpretation of applicable product safety standards.

* Understanding of the contribution of test houses and certification processes.

* Study of product safety management principles and applications.

STRATEGY

The Product Safety Society intends to meet the Charter statement through enhanced communications and education. The following methods may be used to this end:

* Host presentations by technical experts.

* Provide a forum for presentations to and from test houses.

* Host panel discussions on selected topics.

* Provide information that is predicated on principles of product safety engineering to standards writing groups and other professional organizations.

* Provide information based on Industry practices to third party certification agencies.
IEEE AFFILIATION PETITION UPDATE

Thanks to everyone on this page, we have over the required minimum 100 signatures of IEEE members on our petition! But the more names we have, the stronger our application to the IEEE will be, so SEND in those petitions!!! Please send us your correct IEEE membership number if it is missing from this list. And if YOUR NAME is NOT here, then shame on you! Join the IEEE and send us a petition right away!

Allison, Joseph A 4830337
Andersen, Jerry D. 7562861
Arnold, Jerald L. 5120076
Beckett, Glenn 1939107
Beeman, Robert H. 5609227
Bender, James L. 7040132
Bennett, W S. 1543354
Berger, Bart 065615
Biskup, Richard J. 4622759
Burke, Thomas 4801254
Burleson, A. Jo 3295938
Cabral, Steven 1779560
Cappels, Dick 1846104
Chacon, Lourdes 8597205
Chappeu, Terry N. 1806744
Cheng, Chin 5769203
Chuang, David 4789129
Clapp, Fred D. 0215350
Cocksedge, Kenneth 5773742
Cole, James M. 5373162
Coles, Patricia L. 4055695
Craig, Dana B. 1874999
Cronquist, W E. 3472479
Czock, Stanley M. 2140366
Davis, Robert H. 6737738
Dickson, Douglas W 7859564
Duckett, Jim 4614178
Ellsworth, Orval 5337162
Emerson, Wayne C. 5635008
Esteves, Mabel Ro 6848185
Fujiiyama, Akitoshi 8193641
Goldblum, Robert D. 1556646
Hagel, Hugh 4313599
Hanttula, Dawn M. 6555221
Harris, Ho Mo 2891059
Harrison, David A. 1849850
Hasenau, L. 8317448
Haskins, L. Gilda 4 4422465
Hirsch, A W 1380435
Howard, Keith 4377776
Hunter, Robert D. 6737452
Johns, Lucie J. 8193893
Johnson, Alan 5881941
Johnson, Lin R. 8706426
Kelley, Richard J. 7937188
Kendall, Charles 2738417
Kohoutek, Henry J. 2197663
La'rtega, Jr., Frank 6901557
Laidig, John 6830236
Lamb, James O. 7613243
Leach, M. H. 5237656
iJee, Robert 4069795
iJeung, Kent 7481815
Iim, B. Jeff 8598007
Lockwood, John 5921846
iJuebers, Scott 5133293
Lutter, Michael 4655411
Margherita, Michele 8238883
Marks, Murlin 5581442
Marquez, Jesse 7361496
Marzano, Louis D. 8018426
McBain, John W 8672800
McCarroll, Jr., P. C. 8810087
Mellberg, Hans 6737738
Miller, John J. 6087167
Moll, Thomas J. 8337610
Montague, John P. 3911278
Montgomery, Gordon C. 3684438
Montrose, Mark I. 7081250
Mosher, Stephen s. 7301260
Musterman, s. R. 5527759
Naik, Vipin 6473466
Ott, H. W 1459023
Parker, Thomas H. 4919742
Pathak, Sudhir J.
Pearson, Mark P. 4876561
Pescatore, Richard L. 6428676
Piper, Kenneth A. 6218879
Poling, Philip R. 3648706
Prekeges, David 2779528
Ray, Darryl P. 7272206
Redman, D. John 3964509
Roll, Steven G. 5904347
Sallberg, Charles A. 4827804
Sanesi, Mark 8835831
Shetler, John R. 6514640
Smull, James E. 6843866
Steinfeld, Robert 1779297
Taylor, John P. 6592244
Thompson, Keith 7067879
Todd, Lawrence E. 6539613
Trefney, Ralph P. 6932834
Van Houdt, Al 8768480
Van Savage, John F. 0416115
Victorine, Gary W. 7532310
Wald, Lisa 407553
Waiters, Galen 6197388
Weisbrook, Larry 2719383
Wesling, Paul 6185318
Whitehouse, Terence 4763256
Windem, David 3936382
Woldow, Allan F. 6016992
Wong, Kenneth W. K. 5807805
Wong, Randolph B. 0779967
Wu, Joseph H. 1308344
Yang, Cary Y. 5978671
Yee, Michael 1751882
Yousif, Peious E. 4109690
Yramataegui, Michael H. 4849113
Zahra, Paul 4738431
Zeh, Jr., Richard J. 6510879
Zeidenberg, Girts 0999912
The Calendar of the Product Safety Society

May 1988
Tuesday, May 24
Santa Clara Valley Chapter Meeting
Subject: Warning Signs/Hi-Pot Testing
Speaker: Video/Representative from Rod-L Company
Time: 7:00 pm
Location: Apple Computer
20525 Mariani Ave.
Cupertino, CA

August 1988
Monday June 6
Southern California Chapter Meeting:
Subject: Chapter Startup; Also Witness & Self-Certification Programs
Speaker: Charlie Bayhi, MAI Basic Four
Time: 6:00 pm
Location: MAI Basic Four
14101 Myford Road
Tustin, CA
(See enclosed map)

Wednesday, June 29
Pacific Northwest Chapter Meeting
Subject: Product Liability. Also: Surge Testing
Speaker: Representatives from HP and Fluke
Time: 1:00 pm
Location: John Fluke Mfg. Co.
6920 Seaway Blvd.
Everett, WA
(see enclosed map; please RSVP with enclosed form)