

1 ALAN M. CAPLAN (SBN 49315)
2 APRIL M. STRAUSS, Of Counsel (SBN 163327)
3 BUSHNELL, CAPLAN, FIELDING & MAIER, LLP
4 221 Pine Street, Suite 600
5 San Francisco, CA 94104
6 Tel: 415.217.3800, Fax: 415.217.3820

7 Fred H. Altshuler (SBN 43878)
8 ALTHSULER, BERZON, NUSSBAUM,
9 BERZON & RUBIN
10 177 Post Street, Suite 300
11 San Francisco, CA 94108
12 Tel: 415.421.7151, Fax: 415.362.8064

13 James R. Wheaton (SBN 115230)
14 ENVIRONMENTAL LAW FOUNDATION
15 1736 Franklin Street, Ninth Floor
16 Oakland, Ca 94612
17 Tel: 510.208.4555, Fax: 510.208.4562

18 Attorneys for Plaintiff ENVIRONMENTAL LAW FOUNDATION

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SUPERIOR COURT OF CALIFORNIA
COUNTY OF SAN FRANCISCO - UNLIMITED JURISDICTION

IN RE VINEGAR LITIGATION

Case No. CGC-03-421108
(consolidated with Nos. CGC-04-428945
and CGC-04-435440)

**[PROPOSED] CONSENT JUDGMENT
AS TO CERTAIN DEFENDANTS;
ORDER**

[PROPOSED] CONSENT JUDGMENT AS TO CERTAIN DEFENDANTS

1 **1. INTRODUCTION**

2 1.1 On June 5, 2003, February 20, 2004 and October 13, 2004, the Environmental Law
3 Foundation (“ELF”), individually and on behalf of the general public, filed complaints for civil
4 penalties, restitution and injunctive relief in San Francisco County Superior Court (“Court”) in
5 actions entitled, respectively, *Environmental Law Foundation v. Cost Plus, Inc.*, et. al., Case No.
6 CGC-03-421108, *Environmental Law Foundation v. Borges USA Inc.*, et. al., Case No. 04-428945
7 and *Environmental Law Foundation v. Albeco, Inc.*, Case No. 04-4235440. On March 1, 2005, the
8 Court consolidated these three actions, with *ELF v. Cost Plus* serving as the lead case. For
9 purposes of this Consent Judgment, the term “Action” shall reference the consolidated actions
10 identified above.

11 1.2 Borges USA, Inc., Colavita USA, L.L.C., H.J. Heinz Co., Lettieri & Co., Ltd.,
12 Mizkan Americas, Inc. (formerly known as Nakano Foods, Inc.), Rao’s Specialty Foods, Inc.,
13 Saponi d’Italia, Inc., Source Atlantique, Incorporated, Spectrum Organic Products, Inc., Tree Of
14 Life, Inc., and Vigo Importing Co. (collectively, “Supplier Defendants”); Albertsons, Inc.,¹
15 Raley’s, Ralphs Grocery Company, Bell Markets, Cala Foods, Inc., The Kroger Company, Inter-
16 American Foods, Inc., Safeway Inc., The Vons Companies, Wild Oats Markets, Inc., and
17 Williams-Sonoma, Inc. (collectively, the “Retailer Defendants”; and, together with the Supplier
18 Defendants, the “Settling Defendants”) each sell Wine Vinegars to persons in the State of
19 California and are defendants named in the complaints (“Complaints”) filed in the actions listed in
20 Section 1.1 of this Consent Judgment.² In addition to the aforementioned companies, the

21 ¹ Albertson's, Inc. was the subject of plaintiffs' 60 day notice and complaint in this matter. New Albertson's, Inc and
22 Albertson's LLC are executing this consent judgment as the succeeding owners of Albertson's, Inc's California stores.
23 Accordingly, New Albertson's, Inc and Albertson's LLC are Settling Defendants and Retailer Defendants hereunder. For
24 New Albertson's, Inc and Albertson's LLC, the releases in this consent judgment apply only to the Albertson's, Inc stores
25 they acquired, and any additional Albertson's stores these entities may open prior to entry of this judgment.

26 ² The Liberty Richter division of Tree of Life, Inc. was erroneously named by the plaintiff as “Liberty Richter, Inc.” in
27 this Action; all of Tree of Life, Inc.'s various divisions, brands, and subsidiaries are Supplier Defendants and Settling
28 Defendants hereunder. Spectrum Organic Products, Inc. was acquired by The Hain Celestial Group, Inc. after the filing
of the Action and became a wholly owned subsidiary, Spectrum Organic Products, L.L.C. Saponi d’Italia, Inc. was
named by ELF in its March 26, 2004 60-day notice letter and will be deemed to have been named in the Action
concurrently with it becoming a Supplier Defendant and Settling Defendant upon the entry of this Consent Judgment; as
set forth above, its parent, Domenico Manca S.p.A., is also becoming a Supplier Defendant and Settling Defendant
hereunder. After originally being named by ELF in the Action, Rao’s Specialty Foods, Inc., and Source Atlantique,
Incorporated were previously dismissed from the Action, but based on their stipulation to the terms set forth herein, both
will, concurrently with the entry of this Consent Judgment with the Court, nevertheless be deemed to have been re-
named in the Action and to be Supplier Defendants and Settling Defendants hereunder.

1 following shall be deemed to have been named in this Action and to be full Supplier Defendants
2 and Settling Defendants hereunder as of January 15, 2007,³ provided that neither the California
3 Attorney General, a California District Attorney, or a City Attorney of a California city having a
4 population exceeding 750,000 has filed a complaint against them alleging violations of Proposition
5 65 with respect to lead in Wine Vinegar: Acetificio M. de Nigris s.r.l., Domenico Manca S.p.A.,
6 Italfoods, Inc., Monari Federzoni, S.p.A., Ponti, S.p.A., Toshi Vignola SRL, and World Finer
7 Foods, Inc.⁴ For purposes of this Consent Judgment, the term "Wine Vinegar" shall mean any
8 vinegar that contains wine as a constituent, while the term "Red Wine Vinegar" shall mean any
9 balsamic vinegar and any vinegar that contains red wine as a constituent.

10 **1.3** In its Complaints, ELF alleges that the Settling Defendants manufactured, distributed
11 and/or sold Wine Vinegar containing lead in an amount that resulted in an exposure to consumers
12 in violation of the provisions of Health and Safety Code §§ 25249.5 et seq. ("Proposition 65") and
13 Business & Professions Code §§ 17200 et seq. ("Unfair Competition Law") by knowingly and
14 intentionally exposing persons to a chemical known to the State of California to cause
15 reproductive toxicity, namely lead, without first providing a clear and reasonable warning to such
16 individuals.

17 **1.4** For purposes of this Consent Judgment only, ELF and Settling Defendants (hereafter
18 referred to as the "Parties"), stipulate that this Court has jurisdiction over allegations of violations
19 contained in the Complaints and personal jurisdiction over the Settling Defendants as to the acts
20 alleged in the Complaints, that venue is proper in the County of San Francisco and that this Court
21 has jurisdiction to enter this Consent Judgment as a resolution of all claims which could have been
22 raised in the Complaints based on the facts alleged therein.

23 **1.5** Each Settling Defendant denies the allegations set forth in the Complaints.
24

25
26 ³ The date identified above represents the first day following the running of the notice period associated with the 60-day
notice ELF issued to Acetificio M. de Nigris s.r.l., Domenico Manca S.p.A., Italfoods, Inc., Monari Federzoni, S.p.A.,
Ponti, S.p.A., Toshi Vignola SRL, and World Finer Foods, Inc. on November 14, 2006.

27 ⁴ Taormina Sales Company, Inc. serves as the exclusive U.S. agent and distributor for Acetificio M. de Nigris s.r.l. and,
28 as such, is among the intended beneficiaries of section 7.1 below.

1 1.6 For the purpose of avoiding prolonged litigation, the Parties enter into this Consent
2 Judgment as a full settlement of all claims that were raised in the Complaints based on the facts
3 alleged therein, or which could have been raised in the Complaints arising out of the facts alleged
4 therein. By execution of this Consent Judgment, no Settling Defendant admits any violations of
5 Proposition 65 or the Unfair Competition Law or any other law and specifically denies that it has
6 committed any such violations and maintains that all Wine Vinegar products that it has sold and
7 distributed in California have been and are in compliance with all laws. Nothing in this Consent
8 Judgment shall be construed as an admission by any Settling Defendant of any fact, finding,
9 conclusion, issue of law, or violation of law. However, this paragraph shall not diminish or affect
10 the responsibilities and duties of the Parties under this Consent Judgment.

11 **2. CLEAR AND REASONABLE WARNINGS**

12 2.1 The only Wine Vinegars for which warnings are required under Proposition 65 are
13 those Red Wine Vinegars that contain lead in excess of 34 parts per billion ("ppb"). Other Wine
14 Vinegars shall not necessitate warnings for lead under Proposition 65.

15 2.2 **Warning Standard For Retailer Defendants Selling Red Wine Vinegars.** No later
16 than ninety (90) days after entry of this Consent Judgment, each Retailer Defendant shall not sell or
17 offer for sale in its California stores any Red Wine Vinegars that contain lead at levels that exceed
18 34 ppb unless warnings are given in accordance with Sections 2.2(a) or 2.2(b) of this Consent
19 Judgment.

20 a. **Shelf Warning.** A Retailer Defendant may provide a warning by placing a
21 notice on the top shelf of each rack of shelves in its stores in California where Red Wine Vinegars
22 are sold. The warning shall state:

23 "CALIFORNIA PROPOSITION 65 WARNING:
24 The Red Wine Vinegars and Balsamic Vinegars on this shelf
25 contain lead, a chemical known to the State of California to cause
 birth defects or other reproductive harm."

26 or

27 "CALIFORNIA PROPOSITION 65 WARNING:
28 The Red Wine Vinegars and Balsamic Vinegars on these shelves
 contain lead, a chemical known to the State of California to cause
 birth defects or other reproductive harm."

1 Each sign shall be no smaller than 2.25 inches x 5.5 inches, and the form and type shall be
2 substantially similar to that which is attached hereto as Exhibit A (hereinafter, the "Warning Sign").

3 (1) Any Wine Vinegar sold by a Retailer Defendant may be
4 sold on a shelf that utilizes warnings with the language as described above in paragraph 2.2(a)
5 unless (1) that Retailer Defendant has conducted testing in accordance with the testing requirements
6 referenced in paragraph 2.6 demonstrating that a particular Wine Vinegar contains lead in an
7 amount of 34 ppb or less, or (2) has received test data from a supplier from testing conducted in
8 accordance with the testing requirements referenced in paragraph 2.6 demonstrating that a particular
9 Wine Vinegar contains lead in an amount of 34 ppb or less.

10 (2) In the event that a Retailer Defendant has received test data
11 complying with paragraph 2.2(a)(1) and with the testing requirements referenced in paragraph 2.6
12 demonstrating that a particular Wine Vinegar contains lead in an amount less than 34 ppb, and a
13 Retailer Defendant intends to offer such vinegar for sale, the Retailer Defendant shall utilize the
14 procedures set forth in paragraph 2.6(a).

15 b. **Product Labeling.** A warning may be placed on the packaging, labeling or
16 directly to or on Red Wine Vinegar products by the Retailer Defendant (or someone on the Retailer
17 Defendant's behalf, including but not limited to its agents, or the manufacturers, importers or
18 distributors of the Red Wine Vinegars) that states:

19 "CALIFORNIA PROPOSITION 65 WARNING:
20 This product contains lead, a chemical known to the State of
21 California to cause birth defects or other reproductive harm."

22 (hereinafter, "Product Label Warnings"). Product Label Warnings shall be placed with such
23 conspicuousness as compared with other words, statements, designs and/or devices as to render it
24 likely to be read and understood by an ordinary individual under customary conditions of use or
25 purchase. Compliance with the size requirements established for wine label warnings at 27 C.F.R.
26 § 16.22 shall be deemed to be compliance with the requirements of the preceding sentence.

1 c. **Notice:** Within 60 days of the entry of this Consent Judgment, each
2 Retailer Defendant shall provide in writing substantially the following notice to each of its suppliers
3 of Wine Vinegar:⁵

4 “[Retailer Defendant] is a party to a Consent Judgment in the Superior Court of the State of
5 California that requires [Retailer Defendant] to provide the following warning (the
6 “Proposition 65 Warning”) to purchasers of red wine and balsamic vinegars:

7 **CALIFORNIA PROPOSITION 65 WARNING:**

8 The Red Wine Vinegars and Balsamic Vinegars on these shelves contain lead,
9 a chemical known to the State of California to cause birth defects and other
10 reproductive harm.

11
12 The Proposition 65 Warning is not required for any red wine or balsamic vinegar that
13 contains 34 ppb lead or less, as demonstrated by a required test protocol. If you believe that
14 any red wine or balsamic vinegar supplied by you contains 34 ppb of lead or less and does
15 not require a warning for this reason, and you wish to exempt any such vinegar from the
16 warning requirement, please contact [Contact person at Retailer Defendant] to obtain a
17 description of the test requirements and procedures that you must follow.”

18 **2.3 Warning Standard For Supplier Defendants Selling Red Wine Vinegars.** No
19 later than ninety (90) days after entry of this Consent Judgment, each Supplier Defendant shall not
20 ship or offer to ship into California any Red Wine Vinegars that contain lead at levels that exceed
21 thirty four (34) ppb unless warnings are given in accordance with Sections 2.3(a) or 2.3(b) of this
22 Consent Judgment.

23 a. Each Supplier Defendant or an entity acting on its behalf may, free of
24 charge, mail to the central purchasing office for distributors and retail stores with whom it
25 transacts business for sale of Red Wine Vinegar which reasonably may be expected to offer
26 such Red Wine Vinegar for sale in California (“In-State Distributors and Retailers”): (1) at

27 ⁵ The notice required by this paragraph need not be given to a supplier who is a Supplier Defendant hereunder.
28

1 least five copies of the Warning Sign, and (2) a letter explaining the warning program and
2 providing posting instructions. The explanatory letter and posting instructions shall be in a
3 form substantially equivalent to Exhibits B and C for In-State Distributors and Retailers
4 respectively.

5 Beginning no later than one year and 90 days after entry of this
6 Consent Judgment, each Supplier Defendant or an entity acting on its behalf shall, free of
7 charge, at least annually, provide all In-State Distributors and Retailers to whom it
8 previously sent the signs and instructions described in the preceding paragraph and with
9 which it continues to do business involving the sale of Red Wine Vinegars, a written
10 reminder, substantially in the form of Exhibit D, concerning the Warning Program required
11 under this Consent Judgment and the need for compliance with Proposition 65 warning
12 requirements concerning the sale in California of Red Wine Vinegars that contain lead in
13 excess of the Warning Standard set forth above. The written reminder required by the
14 preceding sentence may be provided by means of letter, postcard or email. Supplier
15 Defendants shall have no initial or continuing obligations to provide Warning Signs, related
16 materials, or annual reminders pursuant to this Section 2.3(a) to any In-State Distributor or
17 Retailer to the extent that they have elected to address their compliance obligations vis-à-vis
18 that In-State Distributor or Retailer in the manner prescribed by Section 2.3(b) below.

19 b. Each Supplier Defendant or an entity acting on its behalf may place on
20 the packaging, labeling, or directly onto a Red Wine Vinegar product, the Product Label
21 Warning.

22 c. Should any Supplier Defendant choose to sell Red Wine Vinegar to
23 any California consumer directly at a retail store it owns or operates within the State of
24 California, such Supplier Defendant will then be bound by the obligations set forth in Section
25 2.2 of this Consent Judgment.

26 **2.4** Any changes to the language or format of the warnings required under Section 2.2
27 and/or Section 2.3 shall be made only after Court approval or obtaining ELF's and the California
28 Attorney General's office's approval. If any Settling Defendant requests a change in language or

1 format of the warnings and ELF does not respond to that request for at least 90 days, then that
2 Settling Defendant may submit that request to the Attorney General with notice to ELF and may act
3 upon subsequent receipt of the Attorney General's approval.

4 **2.5** A Supplier Defendant may offer to ship for sale within California any Red Wine
5 Vinegar without a warning following ninety (90) days after entry of this Consent Judgment if (1)
6 that Supplier Defendant has conducted testing in accordance with the testing requirements
7 referenced in paragraph 2.6 demonstrating that a particular Red Wine Vinegar contains lead in an
8 amount of 34 ppb or less and otherwise complied with the requirements set forth in that paragraph,
9 or (2) has received test data from a producer from testing conducted in accordance with the testing
10 requirements referenced in paragraph 2.6 demonstrating that a particular Wine Vinegar contains lead
11 in an amount of 34 ppb or less.

12 **2.6** Testing shall be conducted by a testing laboratory with Environmental Laboratory
13 Certification from the State of California, Department of Health Services, Environmental Laboratory
14 Accreditation Program. Settling Defendant may rely on those test results so long as the facility that
15 performed the tests confirms in writing that it utilized the testing protocol of Professor A. Russell
16 Flegal, attached hereto as Exhibit E. As used in this Consent Judgment "34 ppb lead or less" means
17 that 10 samples of each individual product have been tested in accordance with the requirements set
18 forth in this Consent Judgment and that the individual, raw data, results from the ten (10) samples
19 collectively yield an arithmetic mean of 34 ppb lead or less and no more than one individual sample
20 has a result exceeding 50 ppb lead, regardless of the source of the lead, excepting laboratory
21 contamination or other contamination having nothing whatsoever to do with the lead content of the
22 individual product being tested.

23 a. At least 60 days before any proposed discontinuance of any warnings issued
24 pursuant to this Consent Judgment, a Settling Defendant proposing such discontinuance shall
25 provide to ELF the results, the underlying data, and a description of the test methodology used. ELF
26 shall keep all such information confidential except as is necessary to contest the exception from
27 warning of the product. Should ELF dispute for any reason the discontinuance of any warning, the
28 dispute may be submitted by either party to the Court for resolution on motion. Unless and until

1 such is resolved favorably to Settling Defendant, the warning in question may not be discontinued.
2 If there is no objection or the objection is resolved favorably to the Settling Defendant, future units
3 of the subject product that tests 34 ppb lead or less shall not be shipped to California bearing a
4 warning label as prescribed under paragraph 2.2(b) nor be placed on a shelf referenced by a shelf
5 sign under paragraph 2.2(a).

6 **2.7** Each Settling Defendant's compliance with Sections 2.1 through 2.6 of this Consent
7 Judgment shall fully and completely satisfy such Settling Defendant's obligations to provide
8 warnings for all Wine Vinegars with respect to the presence of lead under Proposition 65, the
9 California Business and Professions Code, and all State or local (within California) laws,
10 regulations, or ordinances.

11 **2.8** Should any court enter a final judgment in a case brought by ELF on behalf of or in
12 the interest of the people or general public of the State of California involving Wine Vinegars that
13 allegedly contain lead which sets forth standards defining when Proposition 65 warnings will or will
14 not be required ("Alternative Standards"), Settling Defendants shall be entitled to seek modification
15 of this Consent Judgment so as to be able to utilize and rely on such Alternative Standards in lieu of
16 those set forth in Sections 2.2 and 2.3 of this Consent Judgment.

17 **2.9** Should ELF reach a settlement in any of its pending or future lawsuits involving
18 claims of Proposition 65 violations and Wine Vinegars that permit warnings that are different in
19 content, method or appearance than is specified under Section 2.2 and Section 2.3 of this Consent
20 Judgment to be provided, then ELF shall provide each Settling Defendant with a copy of the
21 settlement(s), and each Settling Defendant shall, at its discretion, have the option to warn in the
22 manner prescribed by Sections 2.2 and 2.3 of this Consent Judgment as applicable, or in the manner
23 specified in the settlement(s) of the other lawsuits.

24 **3. MONETARY RELIEF**

25 **3.1** Within fifteen (15) days after entry of this Consent Judgment, Settling Defendants
26 collectively shall pay ELF a total of four hundred sixty-seven thousand, five hundred dollars
27 (\$467,500) as settlement proceeds ("Settlement Proceeds") to be applied towards ELF's costs,
28 attorney's fees and a cy pres donation. To the extent it has not already done so, each Settling

1 Defendant shall place the share of the aforementioned amount to which it agreed in conjunction with
2 the mediation that previously occurred in this Action under the supervision of Judge William Cahill
3 (Ret.) into the Morrison & Foerster LLP Client Trust Account at the time it executes this Consent
4 Judgment.⁶ The distribution of these Settlement Proceeds shall be determined by ELF without
5 interference by the Settling Defendants in conjunction with ELF's motion for approval of this
6 Consent Judgment by the Court. The Settlement Proceeds shall be made payable to Bushnell,
7 Caplan, Fielding & Maier, LLP and delivered to Alan M. Caplan at Bushnell, Caplan, Fielding &
8 Maier, LLP, 221 Pine Street, Suite 600, San Francisco, California 94104. ELF shall bear all
9 responsibility for apportioning and paying to the State of California any portion of the Settlement
10 Proceeds as required by California Health & Safety Code Section 25249.12(d), and no Settling
11 Defendant shall have any liability if payments to the State of California are not made by ELF.

12 **3.2** The payment made pursuant to Section 3.1 shall be the only monetary obligation of
13 the Settling Defendants with respect to this Consent Judgment, including as to any fees, costs, or
14 expenses ELF has incurred in relation to this Action.

15 **4. COMPLIANCE WITH HEALTH & SAFETY CODE SECTION 25249.7(f)**

16 **4.1** ELF agrees to comply with the reporting requirements referenced in California Health
17 & Safety Code § 25249.7(f). Pursuant to the regulations promulgated under that section, ELF shall
18 present this Consent Judgment to the California Attorney General's Office within two (2) days after
19 receipt of all necessary signatures. The Parties acknowledge that, pursuant to Health & Safety Code
20 § 25249.7, a noticed motion must be filed to obtain judicial approval of the Consent Judgment.
21 Accordingly, a motion for approval of the settlement shall be prepared and filed by ELF within a
22 reasonable period of time after the date this Consent Judgment is signed by all Parties. ELF agrees
23 to serve a copy of the noticed motion to approve and enter the Consent Judgment on the Attorney
24 General's Office at least forty-five (45) days prior to the date set for hearing of the motion in the
25 Superior Court of the City and County of San Francisco.

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27 ⁶ Bank of America Account No. 16642 05584, ABA Routing No. 0260-0959-3, SWIFT No. BOFAUS3N, client/matter
28 reference number 57346-3.

1 **5. MODIFICATION OF CONSENT JUDGMENT**

2 5.1 This Consent Judgment may be modified by: (1) written agreement among the Parties
3 and upon entry of a modified Consent Judgment by the Court thereon, or (2) motion of ELF or any
4 of the Settling Defendants as provided by law and upon entry of a modified Consent Judgment by
5 the Court thereon. All Parties and the California Attorney General's Office shall be served with
6 notice of any proposed modification to this Consent Judgment at least fifteen (15) days in advance of
7 its consideration by the Court.

8 **6. APPLICATION OF CONSENT JUDGMENT**

9 6.1 Each signatory to this Consent Judgment certifies that he or she is fully authorized by
10 the Party that he or she represents to enter into and execute the Consent Judgment on behalf of the
11 Party represented and legally bind that Party.

12 6.2 This Consent Judgment shall apply to and be binding upon ELF and each of the
13 Settling Defendants, their officers, directors, and shareholders, divisions, subdivisions, parent
14 entities or subsidiaries, and successors or assigns of each of them.

15 **7. CLAIMS COVERED**

16 7.1 This Consent Judgment is a final and binding resolution between ELF and the
17 Settling Defendants of any violation of Proposition 65, Business and Professions Code §§ 17200 et
18 seq., Business and Professions Code §§ 17500 et seq., or any other statutory or common law claim
19 that could have been asserted against the Settling Defendants for failure to provide clear, reasonable
20 and lawful warnings of exposures to lead that result from the ingestion of Wine Vinegar. No claim
21 is reserved as between the Parties hereto, and each Party expressly waives any and all rights which it
22 may have under the provisions of Section 1542 of the Civil Code of the State of California, which
23 provides:

24 A general release does not extend to claims which the creditor does not know
25 or suspect to exist in his favor at the time of executing the release, which if
26 known by him must have materially affected his settlement with the debtor.

27 7.2 **ELF Release of Settling Defendants.** In further consideration of the promises and
28 agreements herein contained, and for the payment to be made pursuant to Section 3.1, ELF, on

1 behalf of itself, its past and current agents, representatives, attorneys, successors and/or assignees,
2 and in the interest of the general public, hereby waives all rights to institute or participate in, directly
3 or indirectly, any form of legal action addressing all claims occurring on or before the entry of this
4 Consent Judgment, and releases all claims occurring on or before the entry of this Consent
5 Judgment, including, without limitation, all actions, causes of action, in law or in equity, suits,
6 liabilities, demands, obligations, damages, costs, fines penalties, losses or expenses, including, but
7 not limited to, investigation fees, expert fees and attorneys' fees of any nature whatsoever, whether
8 known or unknown, fixed or contingent against each of the Settling Defendants and each of their
9 customers, owners, parent companies, corporate affiliates, subsidiaries and its respective officers,
10 directors, attorneys, representatives, shareholders, agents, and employees arising under Proposition
11 65, Business and Professions Code §§ 17200 et seq., and Business & Professions Code §§ 17500
12 et seq., related to each Settling Defendant's alleged failure to warn about exposures to or
13 identification of lead contained in Wine Vinegars.

14 ELF, on behalf of itself, its past and current agents, representatives, attorneys, successors
15 and/or assignees, and in the interest of the general public, and the Settling Defendants further agree
16 and acknowledge that this Consent Judgment is a full, final, and binding, resolution of any violations
17 occurring on or before the entry of this Consent Judgment by each of the Settling Defendants and
18 each of their customers, owners, parent companies, corporate affiliates, subsidiaries and its
19 respective officers, directors, attorneys, representatives, shareholders, agents, and employees, of
20 Proposition 65, Business and Professions Code §§ 17200, et seq. and Business and Professions Code
21 §§ 17500, et seq., that have been or could have been asserted for the failure to provide clear and
22 reasonable warnings of exposure to or identification of lead contained in Wine Vinegars
23 manufactured, imported, distributed, and/or sold by a Settling Defendant.

24 In addition, ELF, on behalf of itself, its attorneys and its agents, waives all rights to institute
25 or participate in, directly or indirectly, any form of legal action addressing all claims occurring on or
26 before the entry of this Consent Judgment, and releases all claims occurring on or before the entry of
27 this Consent Judgment against the Settling Defendants arising under Proposition 65, Business &
28 Professions Code §§ 17200 et seq. and Business & Professions Code §§ 17500 et seq., related to

1 each of the Settling Defendants' alleged failure to warn about exposures to or identification of lead
2 contained in the Wine Vinegars and for all actions or statements regarding the alleged failures to
3 warn about exposures to or identification of lead contained in the Wine Vinegars made by each of
4 the Settling Defendants or its attorneys or representatives, in the course of responding to those
5 alleged violations of Proposition 65, Business & Professions Code §§ 17200 et seq., or Business &
6 Professions Code §§ 17500 et seq., as alleged in the Complaints.

7 It is specifically understood and agreed that, as to future potential claims, ELF and the
8 Settling Defendants intend that each Settling Defendant's compliance with the terms of this Consent
9 Judgment will resolve all issues and liability, now and in the future, concerning such Settling
10 Defendant's compliance with the requirements of Proposition 65, Business & Professions Code
11 §§ 17200 et seq., and Business & Professions Code §§ 17500 et seq., as to lead in Wine Vinegars.
12 An In-State Retailer or Distributor's provision of warnings in a manner authorized in Section 2 of
13 this Consent Judgment shall also hereinafter constitute compliance by such In-State Retailer or
14 Distributor with the requirements of Proposition 65, Business and Professions Code §§ 17200,
15 et seq. and Business and Professions Code §§ 17500, et seq., as to lead in Wine Vinegars
16 manufactured, imported, distributed or sold to them by the Settling Defendants.

17 **7.3 Release of ELF.** Each Settling Defendant waives all rights to institute any form of
18 legal action against ELF or its attorneys or representatives, for all actions taken or statements made
19 by ELF and its attorneys or representatives, in the course of seeking enforcement of Proposition 65,
20 Business & Professions Code §§ 17200 et seq. or Business & Professions Code §§ 17500 et seq., in
21 this Action.

22 **8. RETENTION OF JURISDICTION**

23 **8.1** This Court shall retain jurisdiction of this matter to implement this Consent
24 Judgment.

25 **9. COURT APPROVAL**

26 **9.1** If this Consent Judgment is not approved by the Court, it shall be of no force or effect
27 and cannot be used in any proceeding for any purpose.

1 **10. ENFORCEMENT**

2 **10.1** Before moving to enforce the terms and conditions of this Consent Judgment with
3 respect to an alleged violation, ELF must follow these procedures:

4 (a) In the event that ELF and/or its attorneys, agents or assigns, or any other person acting in
5 the public interest under Health & Safety Code § 25249.7(d) identify one or more retail stores in
6 California owned and operated by a Retailer Defendant at which Red Wine Vinegars are sold
7 (hereinafter "retail outlet") for which the warnings required under Section 2.2 of this Consent
8 Judgment are not being given, or identify one or more In-State Distributors or Retailers to whom
9 warnings materials required under Section 2.3 of this Consent Judgment have not been provided,
10 ELF or such person shall notify, in writing, within 15 days of the date ELF was informed or
11 observed the violation, the Settling Defendant of such alleged failure to warn (the "Probationary
12 Notice of Default"). The Probationary Notice of Default shall be sent to the person(s) identified
13 pursuant to Section 13 herein, and must be served within fifteen (15) days of the date the alleged
14 violation(s) was or were observed. The Probationary Notice of Default shall, at a minimum, set
15 forth the date(s) the alleged violation(s) was observed, the retail outlet(s) in question, and shall
16 identify the Red Wine Vinegars giving rise to the alleged violation(s) and describe the alleged
17 violation(s) with sufficient detail to allow the Settling Defendant to determine the basis of the claim
18 being asserted and the identities of the Red Wine Vinegars to which those assertions apply. The
19 Probationary Notice of Default shall allege all violations that could have been raised with respect to
20 each retail outlet in question as of the date of the Probationary Notice of Default.

21 (b) In the event the Settling Defendant corrects the alleged default(s) within sixty (60) days
22 of receiving the Probationary Notice of Default, ELF or the notifying person shall take no further
23 enforcement action with respect to such violation(s).

24 (c) In the event that the Settling Defendant fails to cure and correct the default(s) within sixty
25 (60) days of receiving the Probationary Notice of Default from ELF or the notifying person, the
26 Settling Defendant shall pay, pursuant to Health & Safety Code § 25249.7(b) to ELF or the notifying
27 person, as a stipulated penalty for failure to remedy the alleged default(s), in the event of a notice of
28 default being issued to a Retailer Defendant, the collective amount of one thousand six hundred

1 dollars (\$1,600) for each retail outlet which was the subject of the Probationary Notice of Default
2 (and in the event of a notice of default being issued to a Supplier Defendant, the collective amount of
3 one thousand six hundred dollars (\$1,600) for each in-state distributor or retailer which was the
4 subject of the Probationary Notice Of Default) and where the alleged default(s) were not remedied
5 by the time such stipulated payment is due.

6 (d) In the event the Settling Defendant wishes to contest the allegations contained in any
7 Probationary Notice of Default served under this paragraph, it shall notify ELF or the notifying
8 person of such in writing within thirty (30) days of its receipt of the Probationary Notice of Default.
9 The Settling Defendant may provide any evidence to ELF or the notifying person in support of its
10 position. In the event that, upon a good faith review of the evidence, ELF or the notifying person
11 agree with the Settling Defendant's position, no further action shall be taken. In the event the
12 Settling Defendant provides documentary evidence, and ELF or the notifying person disagrees with
13 the Settling Defendant's position, it shall, within thirty (30) days, notify the Settling Defendant of
14 such and provide the Settling Defendant, in writing, with the reasons for its disagreement.
15 Thereafter, the parties shall meet and confer to attempt to resolve their dispute on mutually
16 acceptable terms; if no such resolution results, ELF may seek to enforce the terms and conditions
17 contained in this Consent Judgment in any State Court in the State of California or ELF or the
18 notifying person may initiate an enforcement action for new violations pursuant to Health and Safety
19 Code § 25249.7(d) without regard to the stipulated penalties provided for by Section 10.1(c).

20 **11. GOVERNING LAW**

21 **11.1** The terms of this Consent Judgment shall be governed by the laws of the State of
22 California. In the event that Proposition 65 is repealed or is otherwise rendered inapplicable by
23 reason of law generally, or as to Wine Vinegars specifically, then the Settling Defendants shall have
24 no further obligations pursuant to this Consent Judgment with respect to, and to the extent those
25 Wine Vinegars are so affected.

1 **12. EXCHANGE IN COUNTERPARTS**

2 12.1 Stipulations to this Consent Judgment may be executed in counterparts and by
3 facsimile, each of which shall be deemed an original, and all of which, when taken together, shall be
4 deemed to constitute one document.

5 **13. NOTICES**

6 13.1 All correspondence and notices required to be provided pursuant to this Consent
7 Judgment shall be in writing and personally delivered or sent by: (a) first-class, registered, certified
8 mail, return receipt requested, or (b) overnight courier on ELF or a Settling Defendant by the others
9 at the addresses listed in Exhibit F. Either ELF or a Settling Defendant may specify in writing to the
10 other Parties a change of address to which all notices and other communications shall be sent.

11 **14. SEVERABILITY**

12 If, subsequent to court approval of this Consent Judgment, any of the provisions of this
13 Consent Judgment are held by a court to be unenforceable, the validity of the enforceable provisions
14 remaining shall not be adversely affected.

15 **IT IS SO STIPULATED:**

16 DATED: ~~December~~, 2006

17 January 3, 2007

18 By:



For Environmental Law Foundation

19 Name: JANET WILSON

20 Title: PRESIDENT

1 **13. NOTICES**

2 **13.1** All correspondence and notices required to be provided pursuant to this Consent
3 Judgment shall be in writing and personally delivered or sent by: (a) first-class, registered, certified
4 mail, return receipt requested, or (b) overnight courier on ELF or a Settling Defendant by the others
5 at the addresses listed in Exhibit F. Either ELF or a Settling Defendant may specify in writing to the
6 other Parties a change of address to which all notices and other communications shall be sent.

7 **14. SEVERABILITY**

8 If, subsequent to court approval of this Consent Judgment, any of the provisions of this
9 Consent Judgment are held by a court to be unenforceable, the validity of the enforceable provisions
10 remaining shall not be adversely affected.

11 **IT IS SO STIPULATED:**

12 DATED: November __, 2006

13 By:

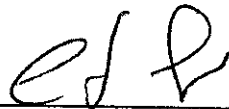
14 _____
15 For Environmental Law Foundation

16 Name: _____

17 Title: _____

18 DATED: ^{December} ~~November~~ 14, 2006

19 By:

20 
21 _____
(Signature)

22 Name (printed): Charles F. Cole
23 Group Vice President
Litigation and Regulatory Affairs

24 Title: _____

25 Company: New Albertson's, Inc.

1 **13. NOTICES**

2 **13.1** All correspondence and notices required to be provided pursuant to this Consent
3 Judgment shall be in writing and personally delivered or sent by: (a) first-class, registered, certified
4 mail, return receipt requested, or (b) overnight courier on ELF or a Settling Defendant by the others
5 at the addresses listed in Exhibit F. Either ELF or a Settling Defendant may specify in writing to the
6 other Parties a change of address to which all notices and other communications shall be sent.

7 **14. SEVERABILITY**

8 If, subsequent to court approval of this Consent Judgment, any of the provisions of this
9 Consent Judgment are held by a court to be unenforceable, the validity of the enforceable provisions
10 remaining shall not be adversely affected.

11 **IT IS SO STIPULATED:**

12 DATED: November __, 2006

13 By:

14 _____
15 For Environmental Law Foundation

16 Name: _____

17 Title: _____

18 *December 20*
19 DATED: ~~November~~ __, 2006

20 By:

21 *Paul G. Rowan*

22 (Signature)

23 Name (printed): **Paul G. Rowan**

Sr. Vice President & General Counsel

24 Title: _____

25 Company: *Albertson's LLC*

1 DATED: December 20, 2006

2 By: Valerie D. Lewis
3 (Signature)

4 Name (printed): Valerie D. Lewis

5
6 Title: Sr. Corporate Counsel

7
8 Company: Safeway Inc. and
The Vons Companies, Inc.

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11 **IT IS SO ORDERED, ADJUDGED AND DECREED:**

12
13 DATED: _____

14 _____
15 JUDGE OF THE SUPERIOR COURT

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DATED: December 22, 2006

By:



(Signature)

Name (printed): Richard Harvey

Title: Executive Vice President

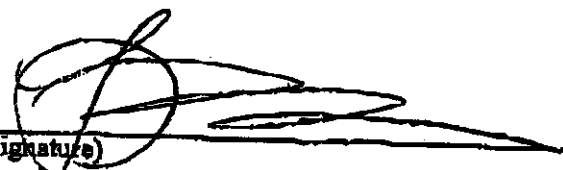
Company: Williams - Sonoma

IT IS SO ORDERED, ADJUDGED AND DECREED:

DATED: _____

JUDGE OF THE SUPERIOR COURT

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(Signature)

Name (printed): Freyja R. B. Oer

Title: Sr. VP

Company: Wild Oats
Markets, Inc.

IT IS SO ORDERED, ADJUDGED AND DECREED:

DATED: _____

JUDGE OF THE SUPERIOR COURT

1 DATED: December 21, 2006

2 By:

3 
(Signature)

4 Name (printed): Steven Prough

5 Title: Corporate Attorney

6 Company: Ralph's Grocery Company

7
8
9
10
11 **IT IS SO ORDERED, ADJUDGED AND DECREED:**

12
13 DATED: _____

14
15 _____
16 JUDGE OF THE SUPERIOR COURT

1 DATED: December 22 2006

2 By:

3 Jennifer H. Crabb
4 (Signature)

5 Name (printed): Jennifer H. Crabb

6 Title: General Counsel + Secretary

7 Company: Raley's

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10
11 **IT IS SO ORDERED, ADJUDGED AND DECREED:**

12 DATED: _____

13
14
15 _____
16 JUDGE OF THE SUPERIOR COURT

1 DATED: December 20, 2006

2 By: 
3 (Signature)

4 Name (printed): Robert L. Falk

5 Title: Outside Counsel
6 Morrison + Foerster LLP
7 Company: On behalf of the
8 Supplier Defendants *
9 as delineated above. *

10
11 IT IS SO ORDERED, ADJUDGED AND DECREED:

12
13 DATED: _____

14
15 _____
16 JUDGE OF THE SUPERIOR COURT

17
18 * Morrison + Foerster LLP intends to provide the Court
19 with additional signature pages completed by each of
20 the Supplier Defendants prior to the Court's hearing
21 on Plaintiff's forthcoming motion for approval of
22 this proposed consent judgment.
23
24
25
26
27
28

1 DATED: December __, 2006

By:

(Signature)

Name (printed): _____

Title: _____

Company: _____

11 **IT IS SO ORDERED, ADJUDGED AND DECREED:**

13 DATED: _____

JUDGE OF THE SUPERIOR COURT

EXHIBIT A: WARNING SIGN

**CALIFORNIA PROPOSITION 65
WARNING:**

The Red Wine Vinegars and Balsamic Vinegars on these shelves contain lead, a chemical known to the State of California to cause birth defects or other reproductive harm

OR

**CALIFORNIA PROPOSITION 65
WARNING:**

The Red Wine Vinegars and Balsamic Vinegars on this shelf contain lead, a chemical known to the State of California to cause birth defects or other reproductive harm

EXHIBIT B: INSTRUCTIONS TO DISTRIBUTORS

RE: Court-ordered Proposition 65 Warnings for Red Wine and Balsamic Vinegars Sold in California

Dear Red Wine or Balsamic Vinegar Distributor:

Important materials for your retail customers, concerning the need to provide court-ordered warnings for certain red wine and balsamic vinegars are attached to this letter. *You must send the enclosed materials (both the attached instructions and signs) to each of your retail customers that sells red wine and balsamic wine vinegars in California.*

These materials are being provided by suppliers of red wine and balsamic vinegars as part of a court-approved settlement of a legal action brought under Proposition 65 (California Health & Safety Code section 25249.6) by the Environmental Law Foundation ("ELF"). In this legal action, ELF claimed that wine vinegars contain lead. Lead is a chemical known the State to cause birth defects or other reproductive harm, and ELF claimed that manufacturers, importers, distributors, and retailers of these products are legally required to provide consumers with a clear and reasonable warning of this exposure to lead. The companies sued disputed these claims, and maintained that any lead present in red wine and balsamic vinegars is naturally occurring, reduced to the lowest level feasible, and not present in a significant amount, but have agreed to take various actions to settle the case.

If you do not send these materials to your California accounts as directed, you risk legal action in which monetary penalties and attorneys' fees could be sought.

The red wine and balsamic vinegars that are the subject of this notice may be sold legally, including in California, because they comply with all applicable federal and state standards for food safety.

Not all red wine and balsamic vinegar suppliers are participating in this court-ordered warning program. Suppliers that are not participating in this program may be providing wine vinegars that require Proposition 65 warnings. You should contact your suppliers to determine if they are in compliance with Proposition 65, since failure to comply could subject you to the legal actions referred to above.

If you need more signs to cover your California accounts, contact [name and telephone number and/or email address] and they will be sent to you.

Sincerely,

EXHIBIT C: INSTRUCTIONS TO RETAILERS

RE: Court-ordered Proposition 65 Warnings for Red Wine Vinegars Sold in California

Dear Red Wine or Balsamic Vinegar Retailer:

Important material concerning the need to provide court-ordered warnings for certain red wine and balsamic vinegars is attached to this letter. It is very important that you read and follow these instructions.

Enclosed are signs for posting in your California store(s) if you currently sell any red wine or balsamic vinegars. *You must post this sign on the top shelf of any rack of shelves in your California store(s) where red wine and/or balsamic vinegars are sold, or on the shelf where the red wine and/or balsamic vinegars are sold.* You may use the sign as is (i.e., on heavy cardboard stock) or you may reprint it in another medium (e.g., in the form of a decal or a plaque). The signs you post must contain the same language and format as the enclosed signs and must be no smaller than 2.25 inches x 5.5 inches. You must also ensure that the signs are, at all times, posted where required, legible and in good condition.

These materials are being provided by suppliers of red wine and balsamic vinegars as part of a court-approved settlement of a legal action brought under Proposition 65 (California Health & Safety Code section 25249.6) by the Environmental Law Foundation ("ELF"). In this legal action, ELF claimed that wine vinegars contain lead. Lead is a chemical known the State to cause birth defects or other reproductive harm, and ELF claimed that manufacturers, importers, distributors, and retailers of these products are legally required to provide consumers with a clear and reasonable warning of this exposure to lead. The companies sued disputed these claims, and maintained that any lead present in red wine and balsamic vinegars is naturally occurring, reduced to the lowest level feasible, and not present in a significant amount, but have agreed to take various actions to settle the case.

If you do not post these signs in your California stores as directed, you risk legal action in which monetary penalties and attorneys' fees could be sought.

The red wine and balsamic vinegars that are the subject of this notice may be sold legally, including in California, because they comply with all applicable federal and state standards for food safety.

Not all red wine and balsamic vinegar suppliers are participating in this court-ordered warning program. Suppliers that are not participating in this program may be providing wine vinegars that require Proposition 65 warnings. You should contact your suppliers to determine if they are in compliance with Proposition 65, since failure to comply could subject you to the legal actions referred to above.

If you need more signs to cover all of your California stores, contact [name and telephone number and/or email address] and they will be sent to you.

Sincerely,

EXHIBIT D: ANNUAL REMINDER TO DISTRIBUTORS AND RETAILERS

This is to remind you that the sale in California of virtually all red wine and balsamic vinegars must be accompanied by certain warnings pursuant to California's unique Safe Drinking Water and Toxic Enforcement Act of 1986 (better known as "Proposition 65"). These warning requirements apply to all retail stores located in California. In addition, distributors of red wine and balsamic vinegars must pass on information about compliance with the warning requirements to their customers. We previously provided you with shelf signs and instructions for effectuating these warning requirements. Failure to provide warnings as required could subject your company to significant monetary penalties and attorneys' fees. If you have any questions about the specifics of the warning program, or need additional shelf signs, you should contact [name and telephone number and/or email address].

EXHIBIT E: TESTING PROTOCOL

Determination of lead in vinegar by ICP-MS and GFAAS: evaluation of different sample preparation procedures

Kuria Ndung'u^{a,b,*}, Sharon Hibdon^a, A. Russell Flegal^a

^a Environmental Toxicology, WIGS University of California, Santa Cruz, CA 95064, USA

^b Institute of Applied Environmental Research (ITM), Stockholm University, Frescatiweg 54, S-106 91 Stockholm, Sweden

Received 4 November 2003; received in revised form 12 February 2004; accepted 12 February 2004

Available online 17 April 2004

Abstract

Lead concentrations of 59 different types of vinegars ($15\text{--}307\ \mu\text{g l}^{-1}$ in balsamic vinegars and $36\text{--}50\ \mu\text{g l}^{-1}$ in wine vinegars) were determined using both inductively coupled plasma mass spectrometry (ICP-MS) and graphite furnace atomic absorption spectrometry (GFAAS). Although the precision of direct analyses, following simple aqueous dilutions, with either instrumental method was poor; that precision, following nitric acid and/or hydrogen peroxide digestions, markedly improved with either instrument and the values obtained with the two instruments were in good agreement. The efficacy of different digestions, including (1) nitric acid using a heating block, with or without addition of hydrogen peroxide and (2) mixtures of nitric acid and hydrogen peroxide using ultra-violet (UV) photolysis, were then assessed. The latter procedure was found to be much faster and more efficient, but it was limited by the relatively high levels of contaminant lead in hydrogen peroxide. Consequently, it is recommended that lead concentrations in vinegar be measured following a nitric acid digestion and UV photolysis to oxidize all organic matter before ICP-MS or GFAAS analysis; and it is further recommended that the thermal settings for the latter analyses be adjusted to account for the apparent presence of relatively volatile organolead compounds in vinegar digests.

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Keywords: Organolead compounds; Vinegar; ICP-MS

1. Introduction

Exposure to contaminant lead remains a public concern because of its pervasiveness in the environment and increasing evidence of lead's sub-lethal toxicities at exposure levels lower than previously thought harmful [1]. In response to those concerns, there have been orders of magnitude reductions in atmospheric emissions of industrial lead, which have resulted in a pronounced decrease in blood lead levels in the US and elsewhere [2]. Now, the most common route of exposure to the general population, in countries where leaded gasoline has been banned, is through the ingestion of food and water contaminated with lead [3].

Among those foods is vinegar, which can contain relatively high levels of lead [4,5]. It may, like wine, come from the grapes vinegar is made from and it might be of

endogenous or anthropogenic origin [6,7]. Conversely, the lead may come from contamination during the vinegar production process [8].

Although there are numerous published studies on the concentration of lead in wine, only a handful of studies have looked at the concentration of lead in vinegar [4,5,9,10]. While some of those studies measured the lead in vinegar or wine directly after simple dilution [10–12], quite often a sample clean-up step was employed prior to the instrumental analysis. This pretreatment is often needed because, in addition to acetic acid and alcohol, both vinegar and wine contain suspended particles and polymeric organic compounds, particularly sugars, which interfere with GFAAS and ICP-MS measurements. The polymeric organic matter might cause blockage of the injector tube and cones of the ICP, due to incomplete pyrolysis of the sugars in the plasma and formation of residual carbon deposits [13]. During the GFAAS analysis, incomplete pyrolysis of the organic matter produces fumes and accumulation of carbonaceous residue

* Corresponding author. Tel.: +46-86747236; fax: +46-86747636.
E-mail address: kuria.ndungu@im.su.se (K. Ndung'u).

after several graphite tube firings which adversely affect the analysis [11].

Two types of oxidation are most common: acidification and irradiation. Wet digestion using nitric acid is usually employed to oxidize the organic matter, and those oxidative digestions are often accelerated by heating the samples in Teflon or other inert and trace metal clean containers on a heating block or heating plate. The addition of hydrogen peroxide also speeds up the oxidation process, but most peroxides contain relatively high amounts of lead. Alternatively, ultraviolet (UV) and/or microwave energy have also been used to oxidize the organic matter in wine [13,14] which is a precursor of many vinegars. Since UV photolysis has not previously been applied to vinegar digestions, and the relative accuracy and efficacy of the different analytical methods for measuring lead in vinegar have not been previously determined.

2. Background

Vinegar is produced by a two-stage fermentation process of suitable sugar or starch containing agricultural material such as grapes, apples, rice, garlic or even onions [15]. Besides vinegar from red and white wine, there are special products such as vinegar from Jerez (Sherry vinegar) in Spain or balsamic vinegar elaborated from a specific region of Italy, Modena [15] Aceto Balsamico di Modena, a typical Italian product is produced from fresh grape must, which is concentrated up to a third of its original volume by a slow heating process. The traditional method of production requires storage in different wood barrels up to 25 years. Another balsamic vinegar is produced by blending the concentrated must with acetic acid, and the mixture is allowed to mature in wooden barrels to develop the typical organoleptic properties [15].

Consequently, there may be pronounced differences in the organic composition of different types of vinegars, including different balsamic vinegars. There may also be large differences in the lead concentrations of different vinegars, based on the origin of the ingredients and the production process. Both of those variables complicate accurate and precise measurements of lead in vinegar.

3. Experimental

3.1. Reagents

All solutions were prepared with de-ionized water ($18 \text{ M}\Omega \text{ cm}^{-1}$) from a Milli-Q[®] analytical reagent-grade water purification system (Millipore, Bedford, MA). Calibration standard solutions and internal standards were prepared from commercial lead standard solution (Spex Plasma, Edison, NJ). Trace metal grade (TMO) nitric acid and hydrochloric acid (Fisher Scientific, Pittsburgh, PA) were used for cleaning laboratory ware. Optima grade nitric acid (Fisher) was used for the preparation of calibration standard solutions and analytical solutions. High purity hydrogen peroxide 30% (Ultrapur, Bayer, Pittsburgh, NJ), together with nitric acid was used for both heat and UV digestions. The matrix modifier used for GFAAS analysis contained 0.05 mg of $\text{NH}_4\text{H}_2\text{PO}_4$ and 0.003 mg of $\text{Mg}(\text{NO}_3)_2$ per 5 μl of solution (Environmental Express, Mt. Pleasant, SC).

3.2. Instrumentation

3.2.1. ICP-MS

All ICP-MS measurements were made with a Thermo-Finnigan Element magnetic sector high resolution ICP-MS using a Glass Expansion Conical nebulizer, a Scott-type double pass spray chamber (cooled to 10°C) and standard nickel cones. Since there were small or no polyatomic interferences for lead, it was analyzed at low resolution ($r = 300$) using ^{209}Bi as an internal standard. The instrument operating parameters and data acquisition details are listed in Table 1.

3.2.2. GFAAS

Graphite furnace atomic absorption spectroscopy (GFAAS) analyses were made on a Perkin-Elmer SIMAA 6000 instrument, fitted with a Zeeman background corrector and AS72 auto sampler. End capped, transversely heated pyrocoated graphite tubes with an integrated L'vov platform (Perkin-Elmer) were used. A lead electrodeless discharge lamp (Perkin-Elmer) was used at the recommended line of 283.3 nm and a lamp current of 450 mA. Magnesium nitrate ($\text{Mg}(\text{NO}_3)_2$)/ammonium phosphate ($\text{NH}_4\text{H}_2\text{PO}_4$) was

Table 1
ICP-MS operating and acquisition parameters

RF power (W)	1250			
Plasma gas flow (l min^{-1})	13			
Auxiliary gas flow (l min^{-1})	0.75			
Nebulizer gas flow (l min^{-1})	0.85–0.95 (optimized daily)			
Sample flow rate ($\mu\text{l min}^{-1}$)	60			
Data acquisition (low resolution, 200 scans)				
Isotope	% mass window	Sample time (s)	Scans/peak	Segment duration (s)
^{208}Pb	5	0.001	100	0.050
^{209}Bi	5	0.001	100	0.050
				Detection mode
				Count
				Count

Table 2
Optimized GFAAS program for measuring lead concentrations ($\mu\text{g l}^{-1}$) in vinegar, following acid, UV and/or microwave digestions

Temperature (°C)	Ramp time (s)	Hold time (s)	Gas flow (ml min^{-1})	Read
110	5	30	250	No
130	15	30	250	No
700	15	30	250	No
1400	0	3	0	Yes
2450	1	3	250	No

used as a chemical modifier. The optimized, based on tests conducted for this report (see following section on GFAAS Program Optimization) GFAAS program used is shown in Table 2.

3.3. Samples

Vinegar samples were purchased from retail stores in California. Fifty-two different types of balsamic vinegar, four wine vinegars, one apple cider vinegar, one rice vinegar and one garlic vinegar were analyzed. The vinegars were mostly in glass bottles, but some were in plastic or ceramic bottles.

3.4. Contamination control

The exteriors of the bottles were rinsed with deionized water before opening in a HEPA filtered (Class 100) trace metal clean laboratory. Aliquots were placed in Teflon digestion vessels that were cleaned with Micro-90 liquid laboratory grade detergent (Cole-Parmer, Vernon Hills, IL) and deionized water when first used or after an incomplete digestion. Subsequently, digestion vessels were re-cleaned by soaking them overnight in 8 M TMG hydrochloric acid followed by at least 8 h in hot TMG nitric acid. The vessels were then rinsed with reagent water and dried under class 100 HEPA-filtered laminar flow air. All other plastic ware (polyethylene or Teflon) used for storing analytical solutions were cleaned using the same procedure, dried, capped, and stored under class 100 HEPA-filtered laminar flow air or double bagged in trace metal clean, self-locking (Zip loc®) plastic bags. The GFAAS was in a HEPA-filtered air room and directly beneath a HEPA-filtered (Class 100) laminar flow canopy within a plastic enclosure.

3.5. Vinegar digestions

3.5.1. Heating block digestions

Analytical portions were weighed (0.5–1.0 g) into Teflon digestion vessels, and 10 ml of TMG nitric acid was added. Vessels were covered loosely with acid cleaned Teflon lids and placed in the heating block (CPI International, Santa Rosa, CA). They were initially digested at 50 °C for 2–3 h to avoid sputtering then the temperature was increased to 90 °C, and then digested to dryness. After cooling, the digests were dissolved in 1 M TMG nitric acid, producing a clear to light

yellow analytical solutions. These were then analyzed for their lead concentration by GFAAS or ICP-MS.

3.5.2. UV digestions

The UV digestion unit consisted of a medium pressure mercury vapor discharge tube (1200 W; Hanovia, Union, NJ) positioned on the ceiling of a purpose-built aluminum housing, (36 cm × 29 cm × 23 cm; UVO-cleaner model 342, Jelight Inc., Laguna Hills, CA), which was cooled by a fan. A digital photometer (model JL1400A, Jelight Inc., Irvine, CA) was used to monitor the power of the UV radiation during the oxidation ($x = 9.2 \pm 0.4 \text{ mW cm}^{-2}$ during the continuous operation of the Hg lamp).

The digestions were carried out by placing 16 custom-made PTFE 15 ml digestion cups fitted with quartz glass caps in the UV digestion unit.

Vinegar samples (0.5 g) were weighed in tarred Teflon vials. These and 1 ml of TMG nitric acid and 0.5 ml of 30% hydrogen peroxide were added prior to the UV treatment.

3.6. Quality control

Sample batches consisted of 24 analytical portions including several duplicate samples. Spikes of lead were added ($90\text{--}150 \mu\text{g l}^{-1}$) prior to digestion to several vinegar analytical portions representative of the variety of products. Standard solutions were analyzed after every 10 analytical solutions to ensure instrument performance. Each analytical batch contained at least three method blanks, three spiked analytical samples, and three reference materials. Because there is no commercially available certified reference material for lead in vinegar (or wine), we used the National Institute of Standards and Technology (NIST) 1640 Standard Reference Material (SRM) for trace metals in natural water (NIST, Gaithersburg, MD) with a lead concentration (where \bar{x} is the mean \pm S.D.) of $27.89 \pm 0.14 \mu\text{g l}^{-1}$ to monitor the extraction efficiency of the digestion process.

4. Results and discussion

4.1. Nitric acid digestion

As previously noted, only a small number of studies have been published on the determination of lead in vinegar [4,5,9,10]. Most of them have employed a sample pretreatment to destroy the organic matter, which might interfere with GFAAS or ICP-MS analyses. In contrast, a few studies have reported direct analysis of lead in wine by GFAAS [16] or ICP-MS [11,17] after a simple aqueous dilution.

However, our attempts to analyze vinegar with or without dilution by either GFAAS or ICP-MS resulted in erroneously high lead concentration values (compared to nitric acid digested vinegar) and relatively poor precision. This analytical variability is illustrated in Table 3, which is a summary of the lead determination in four different types of balsamic

Table 3
Comparison of lead concentrations in four different balsamic vinegars analyzed by GFAAS and ICP-MS with and without nitric acid digestion

Vinegar	Lead concentration ^a ($\mu\text{g l}^{-1}$)			
	Simple dilution		Digested with nitric acid	
	GFAAS	ICP-MS	GFAAS	ICP-MS
Balsamic-1	595 (18)	447 (7)	319 (9)	306 (6)
Balsamic-2	633 (14)	205 (5)	198 (7)	174 (2)
Balsamic-3	277 (30)	68 (16)	61 (7)	60 (5)
Balsamic-4	345 (4)	109 (17)	99 (9)	95 (4)

^a Mean and relative standard deviation (values in parenthesis) of at least six determinations.

vinegars (six replicate digestions or analyses). Because of their complex organic content, these vinegars proved to be the most difficult to analyze by either GFAAS or ICP-MS and with and without a prior nitric acid digestion.

Specifically, measurements with both types of instruments yielded significantly ($P \leq 0.05$, paired t test) higher lead concentrations in balsamic vinegars after simple aqueous dilutions compared to measurements after acid digestions. The disparity was greater in direct analyses of undigested diluted vinegars by GFAAS. In addition to vinegar matrix interferences, we noticed irreproducible sample deposition on the graphite tube due to adhesion of vinegar solutions to the Teflon GFAAS deposition tubing. Moreover, this problem persisted after filtering and diluting the vinegars.

The agreement and precision of the analyses between the two instruments was greatly improved ($R = 0.997$, $n = 0.94$, simple linear regression) after nitric acid digestions. These improvements are attributed to the oxidation of organic matter. That destruction eliminates interferences resulting from nonspecific absorption and scattering of light due to concomitant species in the vinegar solutions.

4.2. UV and heat digestion

Nitric acid, and to a lesser extent hydrogen peroxide, are widely used for wet digestions of organic and inorganic matter prior to instrumental analyses of metals. The oxidative digestions are accelerated by heating the samples in Teflon or other inert, trace metal clean containers on a heating block or heating plate. Those thermal energy sources are now often being replaced by microwave and UV radiation in sample preparations where acid digestion is necessary, because they may be faster and may be done within a closed system [13,18].

Comparing the two methods, nitric acid digestions with UV radiation were faster than those with heating blocks and the digestions were more complete. While the addition of hydrogen peroxide further enhanced the degradation of organic material in the vinegars, the amount of contaminant lead in TMG hydrogen peroxide we used was relatively high ($\sim 15 \mu\text{g l}^{-1}$) and comparable to the lead concentration in some of the vinegars. Thus, cleaner hydrogen peroxide is

necessary for digestion of vinegars with lead concentration in the low to sub $\mu\text{g l}^{-1}$ level.

4.3. GFAAS analysis

Although the instrument manufacturer (Perkin-Elmer) recommended a maximum ashing and atomization temperatures of 400 and 1400 °C, respectively, in the furnace program for lead determination, the use of chemical modifiers allows much higher ashing and atomization temperatures. Freschi et al. [11] used an ashing temperature of 1000 °C and an atomization temperature of 1800 °C to determine lead in diluted wine samples and nitric acid wine digests using a phosphate/magnesium matrix modifier. Buldini et al. [19] also used a phosphate/magnesium modifier and were able to determine lead in nitric acid wine digests using ashing and atomization temperatures of 900 and 1800 °C, respectively.

In the absence of a vinegar or similar matrix SRM with certified lead concentration, we initially started the optimization of the furnace program using digested vinegar spikes and NIST SRM 1640 (natural water) that had undergone a similar nitric acid digestion process as the vinegars. We used the manufacturers recommended ashing and atomization temperatures with a $\text{Mg}(\text{NO}_3)_2/\text{NH}_4\text{H}_2\text{PO}_4$ chemical modifier. We found ashing and atomization temperatures of 800 and 1400 °C, respectively, to be optimum for analysis of digested natural water SRM and quantitative recovery. However, the same furnace program produced low lead recoveries of spiked digested vinegar samples.

An investigation of the GFAAS measurements of vinegar digests with similar lead concentrations as the SRM showed a sharp drop in absorbance between 700 and 800 °C of the digested vinegar samples, but not for the SRM. This disparity is shown in Fig. 1. It contains plots of the variation of absorbance during ashing and atomization temperatures steps of the two types of samples.

Curvatures in both plots indicate the digestion of the vinegar samples produced a relatively labile lead compound(s). Their volatilization between 700 and 800 °C markedly altered the measurements of lead concentrations of the vinegar, which was not replicated in the measurements of lead in the SRM. This thermal variability underscores the importance of close investigation of the furnace program optimization for different sample types and matrices.

4.4. Quality control

Process blanks (reagent water) were also analyzed together with the samples. The mean blank lead concentration was $0.03 \mu\text{g l}^{-1}$ ($n = 4$) with a standard deviation of 0.04, giving a detection limit of $0.12 \mu\text{g l}^{-1}$ analyzed by GFAAS after nitric acid and heat digestion. The spike recovery ($x \pm \text{S.D.}$) of six different vinegars was $96 \pm 5\%$, while the mean recovery of NIST 1640 SRM digests was $97.4 \pm 1.3\%$. The relative standard deviation for duplicate analysis was $< 8\%$.

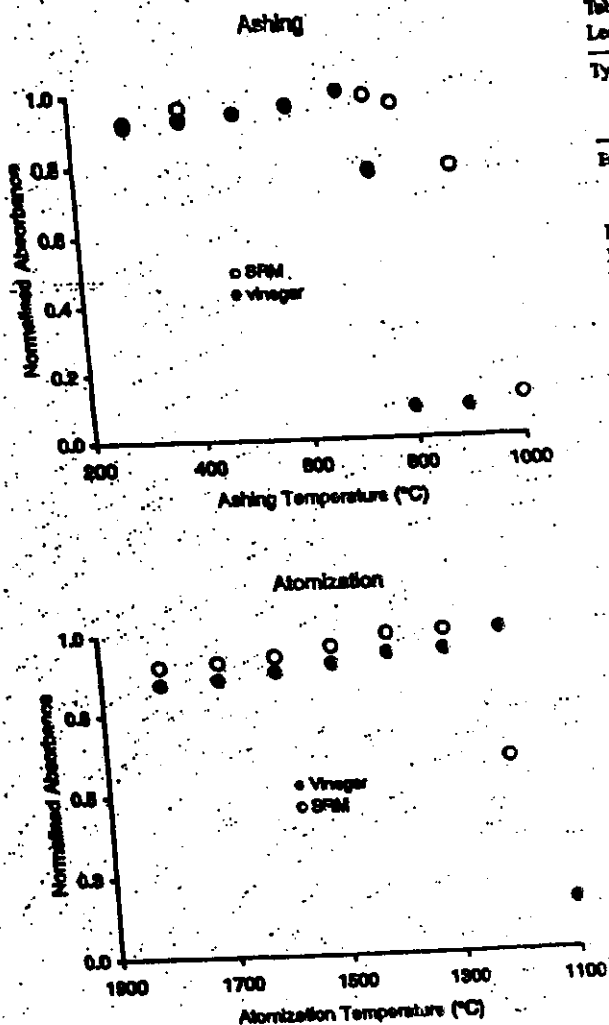


Fig. 1. Variation of absorbance with GFAAS ashing and atomization temperatures for NIST 1640 natural water SRM and a balsamic vinegar after nitric acid (65% w/v) digestion.

4.5. Lead concentrations in vinegars

Table 4 summarizes the results of the measurements. Again, these included analyses of lead concentrations in 52 different types of balsamic vinegars, 4 wine vinegars, 1 apple vinegar, 1 garlic, and 1 rice vinegar. The concentration of lead in the balsamic vinegars ranged from 14.9 to 307 $\mu\text{g l}^{-1}$, with a mean of $68 \pm 56 \mu\text{g l}^{-1}$.

It is notable that the balsamic vinegar ($n = 6$) with the highest lead concentration ($307 \pm 19.5 \mu\text{g l}^{-1}$) was, reportedly, produced by the traditional method of production, which involved aging in different vintage wood barrels. Another balsamic vinegar with a high lead concentration ($257 \mu\text{g l}^{-1}$) had, reportedly, been aged for 18 years. We,

Table 4
Lead concentrations in vinegars

Type of vinegar	Number of brands	Lead concentration ($\mu\text{g l}^{-1}$)		
		Range	Mean	Standard deviation
Balsamic	36	15–68	44	15
	12	73–110	85	12
	2	174–179	173	4
Balsamic (aged)-1	1		276	
Balsamic (aged)-2	1		307	
Wine	4	36–62	50	12
Garlic	1		15	
Apple	1		6.6	
Rice	1		19	
All vinegars	55	7–307	64	54

All measurements are means of at least four or six replicates determinations.

therefore, hypothesize that most of the lead in those vinegars comes from their contact with contaminant lead surfaces during production and storage, possibly metal fittings securing the barrels used to age the vinegars.

This hypothesis is based on the results of several studies of the sources of lead contamination in grape wine [6,7,20,21], because there are no published studies on the sources of lead contamination in vinegar. Three of the wine studies [7,20,21] found the production and storage process to be the main source of lead contamination rather than the grape or the soil. For example, Almeida and Vasconcelos [20] found that only about a quarter of the total content of lead in Portuguese fortified and red table wines, respectively, came from soil and atmospheric deposition and that the rest of the lead was introduced in the vinification processes. They concluded that marked reductions of the lead content in the wines would occur if the sources of lead were removed from the tubes and containers used in the vinification system, particularly by using welding alloys and lead free fittings. They also observed that wines produced via traditional vinification methods had a higher lead concentration compared to those produced by modern technology.

5. Conclusions

Lead concentrations in different types of vinegar vary from less than 10 to more than 300 $\mu\text{g l}^{-1}$, and the accuracy and precision of those lead concentration measurements with different protocols may also vary widely. Direct determinations of lead in vinegar by ICP-MS and GFAAS may provide irreproducible measurements and give poor agreement between the two types of instrumental analysis, but there is good agreement in measurements with the two types of instrumental analysis after vinegar is digested with nitric acid. While use of nitric acid and evaporative digestion in heating blocks is an effective and clean method of processing vinegars prior to ICP-MS and GFAAS analysis, nitric acid digestions with UV photolysis reduce the time required

to process the vinegar and increase the oxidation of its organic constituents. Although the digestion times may be further enhanced with the addition of hydrogen peroxide, the amount of contaminant lead in TMG hydrogen peroxide is too high for measurements of lead concentrations in vinegars with concentrations $<50 \mu\text{g l}^{-1}$. Therefore, we recommend nitric acid digestion of vinegars before ICP-MS or GFAAS determination, and that the latter measurements use ashing and atomization temperatures of 600 and 1300 °C, respectively, rather than the manufacturer's recommended settings because of the apparent volatilization of relatively labile forms of lead in vinegars above those temperatures.

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EXHIBIT F: ADDRESS LIST FOR NOTICES

For Environmental Law Foundation:

James R. Wheaton, Esq.
Environmental Law Foundation
1736 Franklin Street, Ninth Floor
Oakland, CA 94612

Alan M. Caplan
Bushnell, Caplan & Fielding, LLP
221 Pine Street, Suite 600
San Francisco, CA 94104

For Albertsons, Inc.:

Daniel S. Day, Esq.
Legal Department
250 Parkcenter Blvd.
Boise, Idaho 83726

J. Robert Maxwell, Esq.
Rogers Joseph O'Donnell
311 California Street, 10th Floor
San Francisco, CA 94104

For Raley's:

Jennifer H. Crabb, Esq.
General Counsel
Raley's Corporate Office
PO Box 15618
500 W. Capitol Ave.
Sacramento CA 95852

Thomas A. Evans, Esq.
Reed Smith LLP
1999 Harrison St., Suite 2400
Oakland CA 94612

For Ralphs Grocery Company Bell Markets, Cala Foods, Inc., The Kroger Company, and Inter-American Foods:

Steve Prough
Corporate Attorney
Ralphs Grocery Company
P.O. Box 54143
Los Angeles, CA 90054

Lisa A. Cole
Thelen Reid Brown Raysman & Steiner LLP
225 West Santa Clara Street, Suite 1200
San Jose, CA 95113

For Safeway Inc. and The Vons Companies Inc.:

Valerie Lewis, Esq.
Safeway Inc.
5918 Stoneridge Mall Road
Pleasanton, CA 94588-3229

Trenton H. Norris
Bingham McCutchen LLP
3 Embarcadero Center
San Francisco, CA 94111

For Wild Oats Markets, Inc.

Freya Brier, Esq.
Wild Oats Markets, Inc.
3375 Mitchell Lane
Boulder, CO 80301

Trenton H. Norris
Bingham McCutchen LLP
3 Embarcadero Center
San Francisco, CA 94111

For Williams-Sonoma, Inc.:

Kathleen A. McCarthy, Esq.
Williams-Sonoma, Inc.
3250 Van Ness Avenue
San Francisco, CA 94109

Trenton H. Norris
Bingham McCutchen LLP
3 Embarcadero Center
San Francisco, CA 94111

For Supplier Defendants, respectively and as applicable:

**

Company Name: _____
Contact Person: _____
Address: _____

Telephone: _____
Fax: _____
Email: _____

With a copy to:

Michele B. Corash and Robert L. Falk
Morrison & Foerster LLP
425 Market Street
San Francisco, CA 94105
Tel. 415-268-7000
Fax 415-268-7500
Email: Mcorash@mofocom and Rfalk@mofocom

** Morrison & Foerster LLP intends to provide completed Exhibit F Notice Forms for each of the Supplier Defendants prior to the Court's hearing on Plaintiff's forthcoming motion for approval of the proposed Consent Judgment.