MEETING DATE: _____

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: Mary Daval

Organization: resident

Phone Number: (310) 280 0703

Email: _____

Please Check One Box:

☐ Item not on the Agenda

☐ Item on the Agenda #: 1

(Please see reverse for more information)

Please check ONE of the following:

☐ I would like to speak on this agenda item.

☒ I would like to cede one minute of time to another person speaking on an item ON THE AGENDA.
Name of Person to whom Time is ceded: Michelle Baker

☒ I would like my written comments read into the record. *(Please write legibly)*

Please see the reverse side of this card for additional information regarding requests to speak.

Providing your name and other information on the Request to Speak is voluntary and is requested only to provide a reasonable means to notify persons when their opportunity to address the Legislative Body has arrived. All persons may attend the meeting regardless of whether a person signs, registers, or completes a Request to Speak.

14 September 2016

To the Culver City Sustainability Subcommittee:

It is time to immediately ban the use of polystyrene from restaurant use in our city. The reasons are obvious:

1. **SCIENCE**: Polystyrene is not biodegradable. While styrofoam may decompose over hundreds of years, before it does it will have break into little pellets that pollute the ocean and kill wildlife. This fact is scientifically indisputable.

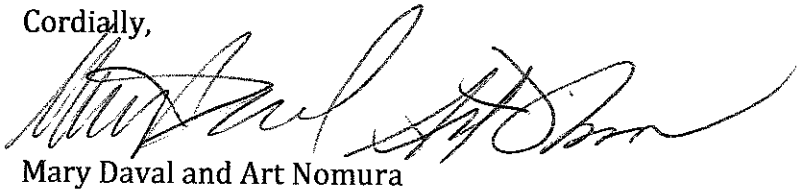
2. **SUSTAINABILITY**: Polystyrene is a petroleum-based product and therefore it's use will encourage our dependence upon fossil fuel consumption. There are far more environmentally friendly alternatives readily available made from paper and plant-based polymers.

3. **HISTORY**: Hundreds of communities, large and small around the world have already banned the use of polystyrene with little or no detriment to their business communities. Such a ban would not be risky or innovative, but would be a proven step our city can take to lessen our dependence upon fossil fuel while increasing our sustainability footprint.

4. **COMMUNITY**: The citizens of Culver City have already spoken overwhelmingly in favor of a polystyrene ban. Why are we wasting the valuable time of city employees, residents, and Council members on an issue that could have and should have been taken care of already? Please ban the use of polystyrene in our restaurants and join the people and businesses of conscience all over the globe in the removal of polystyrene from our waste stream.

Thank you.

Cordially,



Mary Daval and Art Nomura

Irving Place, Culver City, CA

MEETING DATE: _____

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: STEVEN ROSE

Organization: CC CHAMBER

Phone Number: (____)_____

Email: _____

Please Check One Box:

☐ Item not on the Agenda

☐ Item on the Agenda #: 13

(Please see reverse for more information)

Please check ONE of the following:

☐ I would like to speak on this agenda item.

☐ I would like to cede one minute of time to another person speaking on an item ON THE AGENDA.
Name of Person to whom Time is ceded: _____

☒ I would like my written comments read into the record. *(Please write legibly)*

THE CULVER CITY CHAMBER SUPPORTS A COMPREHENSIVE RECYCLING PROGRAM THAT INCLUDES ALL FORMS OF PACKAGING.

Please see the reverse side of this card for additional information regarding requests to speak.

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I WOULD LIKE THE SLIDE OF RESTAURANTS SURVEY.

MEETING DATE: _____

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: Jessica Borek

Organization: California Grocers Association

Phone Number: (____)_____

Email: Jessica@rodriguezstrategies.com

Please Check One Box:

☐ Item not on the Agenda

☐ Item on the Agenda #: _____

(Please see reverse for more information)

Please check ONE of the following:

☐ I would like to speak on this agenda item.

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Name of Person to whom Time is ceded: _____

☐ I would like my written comments read into the record. *(Please write legibly)*

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MEETING DATE: _____

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: Walter Lamb

Organization: Ballona Wetlands Land Trust

Phone Number: (310) 384-1042

Email: walteralamb@gmail.com

Please Check One Box:

☐ Item not on the Agenda

☒ Item on the Agenda #: B

(Please see reverse for more information)

Please check ONE of the following:

☒ I would like to speak on this agenda item.

☐ I would like to cede one minute of time to another person speaking on an item ON THE AGENDA.
Name of Person to whom Time is ceded: _____

☐ I would like my written comments read into the record. *(Please write legibly)*

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MEETING DATE: _____

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: RACHEL SARNOFF

Organization: SGVREG

Phone Number: (310) 968-7769

Email: RACHEL@SGVREG.ORG

Please Check One Box:

☐ Item not on the Agenda

☒ Item on the Agenda #: 1

(Please see reverse for more information)

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Name of Person to whom Time is ceded: _____

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MEETING DATE: _____

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: Steven Rose

Organization: CC Chamber

Phone Number: (____)_____

Email: _____

Please Check One Box:

☐ Item not on the Agenda

☐ Item on the Agenda #: B

(Please see reverse for more information)

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MEETING DATE: _____

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: LEO HERNANDEZ

Organization: EL RINCON CRIOLLO REST

Phone Number: (310) 391-4478

Email: HERNPNDE29620@verizon.net

Please Check One Box:

☐ Item not on the Agenda

☐ Item on the Agenda #: ~~A~~ D

(Please see reverse for more information)

Please check ONE of the following:

☐ I would like to speak on this agenda item.

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MEETING DATE: 9. am

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: Derrick Angus

Organization: Tanga by Derricks

Phone Number: (323) 972-5709

Email: _____

Please Check One Box:

☐ Item not on the Agenda

☐ Item on the Agenda #: D

(Please see reverse for more information)

Please check ONE of the following:

☑ I would like to speak on this agenda item.

☐ I would like to cede one minute of time to another person speaking on an item ON THE AGENDA.
Name of Person to whom Time is ceded: Derrick Angus

☐ I would like my written comments read into the record. *(Please write legibly)*

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MEETING DATE: _____

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: JEFF PAUL

Organization: OUTDOOR GRILL

Phone Number: (818) 652 3454

Email: jeff@theoutdoorgrill.com

Please Check One Box:

☐ Item not on the Agenda

☐ Item on the Agenda #: D

(Please see reverse for more information)

Please check ONE of the following:

☒ I would like to speak on this agenda item.

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Name of Person to whom Time is ceded: _____

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MEETING DATE: _____

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: PAUL LA ROCCO

Organization: LA ROCCO'S PIZZERIA

Phone Number: (310) 837-8345

Email: LAROCCOSPIZZERIA@CA.RR.COM

Please Check One Box:

☐ Item not on the Agenda

☒ Item on the Agenda #: B

(Please see reverse for more information)

Please check ONE of the following:

☒ I would like to speak on this agenda item.

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MEETING DATE: 9-14-16

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: SOE LWIN

Organization: JASMINE ASIAN CHINESE ISLAMIC CUISINE

Phone Number: (310) 895-5701

Email: soelwin@sbcglobal.net

Please Check One Box:

☐ Item not on the Agenda

☐ Item on the Agenda #: B

(Please see reverse for more information)

Please check ONE of the following:

☒ I would like to speak on this agenda item.

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MEETING DATE: 14Sept16

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: Michelle Allaire

Organization: S & W Country Diner

Phone Number: (310) 945-6176

Email: mcd.bhcp@gmail.com

Please Check One Box:

☐ Item not on the Agenda

☑ Item on the Agenda #: D

(Please see reverse for more information)

Please check ONE of the following:

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Name of Person to whom Time is ceded: _____

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MEETING DATE: _____

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: Ambrocio Morales

Organization: El super taco

Phone Number: (323) 282 00 92

Email: _____

Please Check One Box:

☐ Item not on the Agenda

☐ Item on the Agenda #: D

(Please see reverse for more information)

Please check ONE of the following:

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MEETING DATE: _____

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: Heather Stephenson

Organization: Royal Chinese Restaurant

Phone Number: 503) 758-7280

Email: heather.stephenson77@gmail.com

Please Check One Box:

☐ Item not on the Agenda

☐ Item on the Agenda #: _____

(Please see reverse for more information)

Please check ONE of the following:

☐ I would like to speak on this agenda item.

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MEETING DATE: _____

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: Jose S. Fernan

Organization: Campos Tacos Fernan

Phone Number: (310) 204-2654

Email: Saulfernan@Hotmail.com.

Please Check One Box:

☒ Item not on the Agenda

☐ Item on the Agenda #: D

(Please see reverse for more information)

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MEETING DATE: _____

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: James Redmond

Organization: Mega Pizza & Grille

Phone Number: (424) 298-8135

Email: _____

Please Check One Box:

☐ Item not on the Agenda

☐ Item on the Agenda #: D

(Please see reverse for more information)

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MEETING DATE: 9/14/16

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: TODD JOHNSON

Organization: RESIDENT/BUSINESS OWNER/CCUSD ESC.

Phone Number: (310) 387-4913

Email: TODDFILES@MAC.COM

Please Check One Box:

☐ Item not on the Agenda

☐ Item on the Agenda #: _____

(Please see reverse for more information)

Please check ONE of the following:

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MEETING DATE: 9/14

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: Michael Doshi

Organization: GNARLY BEACH CLEANER

Phone Number: (262) 510-9073

Email: GNARLY BEACH CLEANER @ GMAIL.com

Please Check One Box:

☐ Item not on the Agenda

☒ Item on the Agenda #: B Polystyrene

(Please see reverse for more information)

Please check ONE of the following:

☒ I would like to speak on this agenda item.

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Name of Person to whom Time is ceded: _____

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MEETING DATE: _____

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: Michelle Weiner

Organization: Transition Culver City

Phone Number: (____)_____

Email: transitionculvercity@gmail.com

Please Check One Box:

☐ Item not on the Agenda

☒ ~~Item~~ on the Agenda #: B

(Please see reverse for more information)

Please check ONE of the following:

☒ ~~I~~ would like to speak on this agenda item.

☐ I would like to cede one minute of time to another person speaking on an item ON THE AGENDA.
Name of Person to whom Time is ceded: _____

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MEETING DATE: 9/14/2016

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: Michelle Weiner

Organization: Bike Culver City

Phone Number: (____)_____

Email: info@bikeculvercity.org

Please Check One Box:

☑ Item not on the Agenda

☐ Item on the Agenda #: B

(Please see reverse for more information)

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MEETING DATE: 9.14.16

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: WARREN WAGNER

Organization: SURFRIDER FOUNDATION.

Phone Number: (310) 365-2564

Email: Warren@w3architects.com

Please Check One Box:

☐ Item not on the Agenda

☒ Item on the Agenda #: B

(Please see reverse for more information)

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MEETING DATE: _____

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: Amy Rosenstein for Sailor: Brian Cassier will read email

Organization: _____

Phone Number: (____)_____

Email: _____

Please Check One Box:

☐ Item not on the Agenda

☐ Item on the Agenda #: D

(Please see reverse for more information)

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MEETING DATE: _____

FOR OFFICAL USE

ORDER RECEIVED

City of Culver City, California
Request to Speak

You are requested to provide the following information:

Name: Shea Cunningham - rep for BCK coalition

Organization: could not be there today. → (David Hacke)

Phone Number: (310) 663-9749 * Sierra Club

Email: shea@BalancedApproach.net

Please Check One Box:

☐ Item not on the Agenda

☐ Item on the Agenda #: _____

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Susca, Joe

From: Michael Hamill <hamillworld@gmail.com>
Sent: Thursday, September 08, 2016 1:41 PM
To: Susca, Joe
Subject: Comments on Polystyrene (aka Styrofoam) ban

Mr. Susca,
As a long-term Culver City resident, I would like to have the following position considered.

Many communities around Culver City currently recycle Polystyrene while Culver City on recycles #1-5. We are far behind many Cities. We do very little for recycling for small business that can make a serious dent in landfills as well.

A Polystyrene ban on take-out containers in Culver City is not the right move. Such a ban would accomplish very little. This it too much effort for very little accomplishment!! This is not the real culprit of polystyrene in the ocean and Ballona Creek. If we are going to ban it, then let's really ban it. The ban should be for all Polystyrene in the state of California and not the miniscule contribution of take-out containers. Materials exist that can replace in packing materials and all other uses.

I hope the city can take great strides to do the right thing and really move forward.

Thank you.

Michael Hamill
11175 Orville St.
CC, CA 90230
HamillWorld@gmail.com
Phone: 310.926.7529

Susca, Joe

From: Rachel Lincoln Sarnoff I 5 Gyres <rachel@5gyres.org>
Sent: Tuesday, September 13, 2016 8:06 PM
To: Susca, Joe
Cc: Sahli-Wells, Meghan
Subject: Photo for Committee Meeting tomorrow

Hi Joe,

Sorry to send this so late, but I was hoping that you might be able to share it while I'm giving testimony tomorrow in support of the polystyrene ban. Thank you!

Rachel

Rachel Lincoln Sarnoff
Executive Director
5 Gyres Institute
www.5gyres.org

MORE OCEAN
LESS PLASTIC
THE 5 GYRES INSTITUTE

September 10, 2016

Culver City Council,

My name is Soe Lwin and I am the owner of Jasmine Burmese Halal Restaurant located at 4135 S Sepulveda Blvd

We use polystyrene 100% of the time. We use it for in-house and to-go orders. I have looked at the prices of alternatives and they are 2-3 times as expensive. I already am dealing with other increasing costs as well as increased costs of insurance and workers comp.

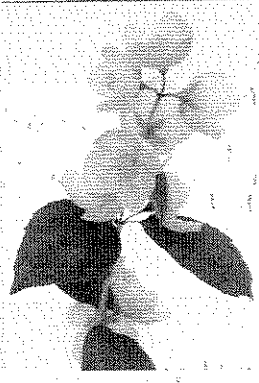
We pride ourselves on being able to provide quality and affordable food to our community.

Please do not ban polystyrene in Culver City. Please recycle it instead.

Thank you,

Soe Lwin

310-895-5701 (cell)



JASMINE

INDIAN & BURMESE FOODS

ZABIHA HALAL

OPEN 6 DAYS · CLOSED MON.

WE DO CATERING

FOR ALL YOUR OCCASIONS

4135 SEPULVEDA BLVD.

CULVER CITY, CA 90230

310-313-3767

La Dijonaise
Café et Boulangerie

August 24, 2016

RE: Culver City Ordinance to Ban Polystyrene Take Out Containers

To whom it may concern:

As a business owner that has been in business here in Culver City, for the past 16 years, I am **against** your proposal of banning all plastic products under recycle code #6. We use products that fall under recycle code #6 at our establishment. To ban these products, that we find cost effective and easily accessible, will have an impact on our operating costs and cause our expenses to increase as alternatives for these products have higher costs associated with them.

Instead of considering a ban on these products, Culver City should initiate a recycling program for these containers. Los Angeles and Long Beach currently both have recycling programs for polystyrene that eliminate a need for a ban. Besides, Culver City already recycles products under other recycle codes, why can't they add code #6 to that list?

Culver City is a small city with many small businesses that already have too many ordinances and regulations to abide by. Adding another that can easily be resolved, by implementing a recycling program to instead of a ban, is one less ordinance to burden businesses with.

Thank you for considering our position in this discussion.

Sincerely,

Thanh Donzel
President,
La Dijonaise Café, Inc.

8703 Washington Blvd., Culver City, CA 90232 (310) 287-2770 tel (310) 287-2771 fax ladijonaise.com

August 30, 2016

RE: Culver City Ordinance to Ban Polystyrene Take Out Containers

To whom it may concern:

As a business owner that has been in business in Culver City for the past 8 years, I am against your proposal of banning all plastic products under the recycle code #6. We use products that fall under recycle code #6 at our establishment. To ban these products, that we find cost effective and easily accessible, will have an impact on our operating costs and cause our expenses to increase. Our expense using alternative products would add an additional 10% to our business.

Instead of considering a ban on these products, Culver City should initiate a recycling program for these containers. Los Angeles and Long Beach currently have recycling programs for polystyrene that eliminate a need for a ban. Culver City already recycles products under other recycle codes, why can't they add code #6 to that list?

Since we are a small city with many small mom & pop businesses that already have too many ordinances and regulations to abide by, adding another can easily be resolved by implementing a recycling program instead of a ban.

Thank you,

Sincerely,

Paul LaRocco
LaRocco's Pizzeria
3819 Main Street
Culver City, CA
www.laroccospizzeria.com

Dear City Council,

Please do not ban the use of styrofoam in Culver City.

I own a small business and paper products are much more expensive.

This kind of law is too expensive to pass.

owner of king's kitch[illegible]
& king's cafe

[illegible signature] michael [illegible]

TO CITY COUNCIL -

PLEASE IMPLEMENT A FOAM RECYCLING PROGRAM IN CULVER CITY.

LOTS OF CUSTOMERS ARE WORRIED ABOUT WASTE AND LOS ANGELES HAS A PROGRAM WHERE THEY RECYCLE FOAM.

THESE SOLUTIONS ARE MUCH BETTER THAN BANS BECAUSE THEY HELP SOLVE THE PROBLEM INSTEAD OF JUST PUTTING IT OFF.

PLEASE SERIOUSLY CONSIDER THIS OPTION.

x [signature]

x Nygel Coviello

MANAGER, JACKSON MARKET

Dear City Council Members -

Please do not ban the use of foam in Culver city.

I use it in my small business; it is the most inexpensive material. Other paper or plastic options are very expensive and they do not work as well.

Please implement a recycling program for foam like Los Angeles, that way you really can help the environment.

LAi, VAN

4349 Sepulveda Blvd
Culver City, CA 90230
310.398.5200

1617 S Pacific Coast Hwy, Ste 101
Redondo Beach, CA 90277
310.792.7800

www.phoshow.net

PHOSHOW

City Council,

I am in favor of a program for recycling Styrofoam, not its ban. As a owner of a restaurant in Culver City a ban would be detrimental to my business and not solve the problem.

Please invest your time and energy in starting recycling programs in our City to really fix the problem.

Best,

Jeff Paul

OUTDOOR GRILL

12630 ½ Washington Pl

LA CA 90066

Jeff,

I am the General Manager at Pieology Culver City. I am in favor of recycling all recyclable materials. We recycle boxes and bottles here at this location. I am in favor of starting recycling styrfoam.

-Kas / Pieology
3850 Main ST unit

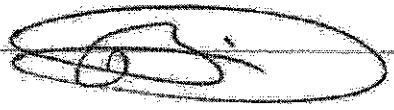
Dear Jim,

Please do not ban styrofoam products.

We use them in my restaraunt and alternatives are too expensive.

Please implement sime type of foam recycling program like they have in Los Angeles.

Durga Khatri



Owner, Shalimar Cuisine of India

City Council Members,

My name is Brianne Mammana and I help my father run Victor Jrs. We are a small business and have been around for 16 years. With rising costs (rent, food, etc.) its becoming more difficult to keep our costs down for our faithful customers. If the styrofoam ban goes into effect, this will make it more difficult for us to keep our costs manageable. Please allow small businesses like ours to recycle instead of banning it altogether.

Regards,

Brianne Mammana

Victor Jrs

Mayo 2, 2016

Para: City Council

Por medio de la presente solicitamos que no se nos sigan agregando restricciones a leyes que limiten la libre elección de los productos que utilizamos para servir nuestros alimentos. Si bien no utilizamos muchos productos de unicel por el impacto que tienen en la naturaleza, existen algunos recipientes que necesitan ser de ese material. Sin embargo estamos comprometidos con el reciclaje de ciertos productos, ya que los separamos y los entregamos a las debidas instancias.

Sin mas por el momento, agradezco su atención y quedo a sus ordenes, por cualquier duda o aclaración.

Atentamente

Sandra Matias

Manajar

Mytoons Café

(310) 815-0888

Dear City Council Members,

I heard that you are considering banning Styrofoam. My restaurant uses Styrofoam for cups and take-out containers, because it is less expensive and more efficent than other products.

Banning Styrofoam would have a huge impact on this restaurant and other small local restaurants. Please do not ban styrofoam, and consider other options such as recycling.

Sincerely,

Vanessa House
11510 W Washington Blvd
LA CA 90066

EL RINCON CRIOLLO
4361 SEPULVEDA BLVD
CULVER CITY, CA 90230
Take-Out: 310.391.4478
www.bestcubanfood.com

TO WHOM IT MAY CONCERN:

THIS IS TO LET YOU KNOW THAT WE ARE AGAINST THIS NEW PROPOSITION OF BANNING FOAM TAKE OUT PRODUCTS. THIS WILL IMPACT OUR BUSINESS IN VERY NEGATIVE WAY, THERE ARE OTHER WAYS TO RECYCLE, PLEASE RECONSIDER. THIS POLICY.

SINCERELY:

OWNER: LEO HERNANDEZ

September 13, 2016

Dear Culver City Council,

I am the owner of Mega Pizza and Grille. We are a new restaurant in Culver City. We rely on styrofoam and plastics #6 for our to-go orders because they are affordable and high quality.

There are many costs with running a new business, and they only increase. In my first year of business I am already dealing with increasing minimum wage and paid sick leave. We cannot just keep increasing our prices because then we will loose customers.

If we recycled styrofoam, then we could all share the cost instead of just us small restaurants dealing with the increased cost.

Please do not ban styrofoam, but recycle instead.

Thank you,

Sam Holm
Cell. 310-940-3022
11028 Washington Blvd
Culver City - CA - 90232

EL BARON

RESTAURANT

August 25, 2016

RE: CULVER CITY ORDINANCE TO BAN POLYSTYRENE

TO WHOM IT MAY CONCERN:

MY NAME IS MARTA PALACIOS AND I AM A BUSINESS OWNER FOR MORE THAN 7 YRS HERE IN CULVER CIITY. I AM OPPOSED TO THE BAN OF ALL PRODUCTS UNDER RECYCLE CODE #6. WE USE STYROFOME FOOD CONTAINERS/CUPS FOR OUR TO-GO ORDERS. BANNING THIS WILL HURT OUR BUSINESS BECAUSE THAT MEANS WE HAVE TO PAY A HIGHER PRICE FOR PACKAGING OUR FOOD ORDERS WHICH THEN MEANS AN INCREASE TO OUR FOOD PRICES.

WE ALREADY HAVE A LOT TO DEAL WITH LIKE FEES, MINUM WAGE INCREASE AND OTHER ORDINANCE AND REGULATIONS. I FEEL THAT CULVER CITY SHOULD STEP IN AND HELP US BUSINESS OWNERS. YOU CAN HELP BUY EXPLORING OTHERS OPTIONS. WHY CAN'T RECYCLING BE AN OPTION? THERE ARE ALREADY OTHER RECYCLE CODES. WHY CAN'T CODE #6 BE ADDED TO THE LIST? OR TRY FINDING OTHER OPTIONS INSTEAD OF JUST BANNING IT? WHY DO BUSINESS OWNERS HAVE TO PAY THE PRICE? LOS ANGELES AND LONG BEACH CURRENTLY HAVE RECYCLING PROGRAMS FOR POLYSTYRENE THAT ELIMINATES THE NEED FOR A BAN WE CAN DO THE SAME HERE.

AGAIN, AS A RESTAURANT OWNER IN CULVER CITY I ASK FOR YOU GUYS TO ALSO CONSIDER OUR SITUATIONS AND HELP FIND A SOLUTION THAT CAN HELP AND BENEFIT ALL THAT ARE INVOLVED.

SINCERELY, A VERY CONCERED RESTAURANT OWNER.

MARTA PALACIOS

EL BARON RESTAURANT

8641 WASHINGTON BLVD., CULVER CITY, CA 90232

310-841-0181/323-377-4777

September 10, 2016

Culver City Council,

I am the owner of The Taste Kitchen at 3970 Sepulveda Blvd. We use styrofoam. 50% of our orders are to-go orders. So, a ban on this material would really hurt our business.

Please don't ban styrofoam and instead recycle.

Thank you,

Patcharee Kamson

PATCHAREE KAMSON

Tel: 310-391-7152

September 10, 2016

Dear Culver City,

I am the owner of Swanyaa Thai Cuisine. My business uses styrofoam. About 60% of all of our orders are to go. The other boxes are a lot more expensive. It will hurt my business if you ban styrofoam because the costs will go up.

Los Angeles recycles styrofoam, why can't Culver City?

Thank you,

NORAWEE PADOONGSNOB
<Greg>

Tel 310 908 3288.

September 10, 2016

Dear Culver City,

I am the manager of Mass 15 Kabob at the Culver City Westfield Mall. We use styrofoam and plastics x 6 for our to-go orders. All of our orders are to-go. This type of ban would hurt our business a lot.

Please don't ban styrofoam.

Please recycle it.

Thank you, Salvador Morales

Salvador Morales

(323) 519-3396

September 10, 2016

Dear City Council,

I am the owner of Coffee Bura. We are located inside a business plaza on Slauson. At least half of our customers order their food to-go and we rely on the affordable styrofoam boxes. We have tried switching to a different material for to-go, but we cannot afford them. These other containers cost more than two times the cost of styrofoam boxes.

We are a small business and average 40 orders a day. This type of ban can ruin our business. Please find a way to recycle this product instead of banning it.

Thank you,

5601 W Slauson Ave #1
Culver City CA 90230

Chong Sun Williams

Chong Sun Williams

Dear, City Council Members

My name is Aaron Ferman I'm the manager at Campos Tacos Ferman Inc. I heared about the banning of foam food service products and wanted to let you guys know we are against it. The prices of other food service products is a lot more expensive and would effect the way we run things here at the restaurant. All the plates we use are foam and so are the cups we use. Our Prices right now are ok, and having to buy other food service products would make price go up and customers wouldn't like that.

Thank You

Campos Tacos Ferman Inc

5 de agosto 2016

Estimados miembros del concilio,

Soy el dueño del restaurante Big Tomy's en 5421 Sepulveda Blvd. Hemos estado aqui por 35 años y estamos muy establecidos en la communidad.

Por favor no prohiba el uso de productos poliestireno me parece mejor reciclar el producto Este prohibido me danará el negocio

Gracias,

Juan pereyra

Juan [signature]

Dear Council members,

I am the owner of Big Tomy's restaurant located at 5421 Sepulveda Blvd. We have been here for 35 years and are very established in the community.

Please don't ban foam food service products. It seems to me better to recycle this product. This ban will hurt my business

August 30, 2016

Dear Culver City Council,

My mother and I are the owners of JR's BBQ. We have been in business here since 1998. We use a lot of styrofoam — it keeps hot foods hot, cold foods cold, and keeps juices from spilling.

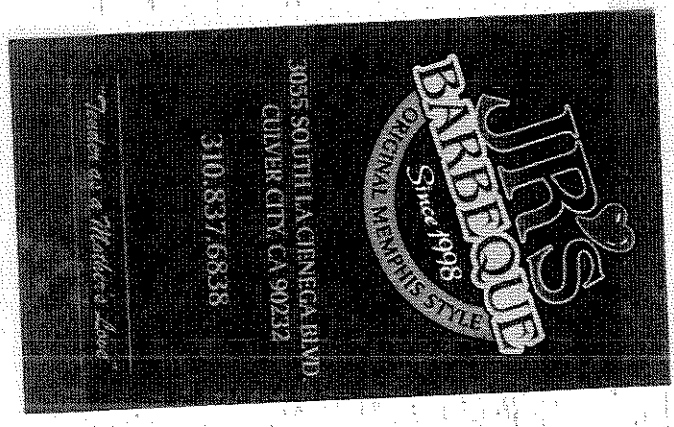
If you were to ban polystyrene to-go products it would really have a negative impact on my business. Half of our orders are take-out and that does not even include the boxes people ask for for their in-house leftovers. So, a change in product would have a big impact on us.

Please don't ban Polystyrene to-go containers. Instead recycle like Los Angeles does.

Thank you,

Ruth Johnson

Logan Johnson



September 10, 2014

Dear City Council,

I am the manger of Sarku Restaurant at the Culver City Westfield Mall we use styrofoam and plastics #6 All, 100%, of our orders are to go. A ban of this material will really hurt our business

Please do not ban this material

Please recycle

Thank you,

Landy X Harrington

PH- 626-627-4708

6000 Sepulveda Blvd #3224

Culver City CA - 90230

08/18/16

Dear City Council Members,

I am the manager of Mayura Indian Restaurant. We use some foam containers and plastic food service products at the establishment for take-out and delivery services. Our motto is to provide the highest quality food at affordable price. The banning of foam products will adversely affect our business. So I request you to be kind enough not to continue with this decision.

Thank you

[signature]

Dr Padmini Aryan

August 30, 2016

Dear Culver City Council,

I am the owner of El Rio Bravo Restaurant located on 5853 W. Washington. We use polystyrene for our to-go orders and take-home containers.

A ban on polystyrene containers will hurt our business. We ask you to not ban this material. Instead please recycle polystyrene to-go materials like Los Angeles does.

Thank you,

Gonzalo Gonzalez

Dear Culver City Council,

My name is Juan Lopez the owner of Don Felix Restaurant located at 3985 ½ Sawtelle blvd.
We have been at this location for seven years and we recently heard about the banding of plastic #6 take out containers.
This matter worries us because we do a lot of take outs, if ban it would hurt my business and.

I'm asking that you please don't ban plastic #6 containers in Culver City and instead recycle them.

Thank you,

Juan Lopez

Don Felix Restaurant
Our goal it's to provide you with a great Mexican flavor!

Juan & Graciela Lopez a Family business

3957 Sawtelle Blvd.
Los Angeles, CA. 90066
310-439-1039
310-751-6076
Full catering service available
For more info: 310-945-7861

August 25, 2010

Dear City Council Members,

I am the owner of EK Valley Restaurant located at 6121 Washington Blvd. We have been in Culver City for 5 years. We are very worried about this ban we serve all of our take out in foam containers and a ban would hurt us Im scared we would have to raise prices and that customers would go to other restaurants.

Please dont ban foam, but recycle it like Los Angeles does.

Thank you,

Ed Jang

August 19, 2016

Dear City Council Members,

I am the manager of Signature Cafe located at 8572 National Blvd. We do a lot of take-out orders and heavily rely on styrofoam products. A ban on this material would have a huge impact on our business.

We ask you to not ban styrofoam, but instead find ways to recycle it.

Thank you,

David Wolfe

Tito's Tacos Mexican Restaurant, Inc. • 11222 Washington Place • Culver City, CA 90230 • Call: 310-391-5780 • Fax: 310-391-9655 • Email: titostacos@msn.com • Web: titostacos.com

August 8, 2016

Re: Foam Containers

Dear Mayor and City Councilmembers,

Tito's Tacos uses Foam Meat Trays to package our Enchiladas and Tamales. We also use an 8oz. coffee cup.

I have attended every Western Restaurant Food Show for the last 15 years looking for an alternative to the Meat Trays. I have not been able to find an anything that will work. The bamboo trays have a slanted edge, so the food slides right off. The wooden trays also have an edge that allows food to slide off. I have inquired about having a custom made container, but I don't use enough for a manufacturer to produce them.

These are identical to the meat trays used by Super Markets.

Thank you for your Consideration,

Lynne Davidson

President

The Only Thing Better than a Tito's Taco is Two!

August 5, 2016

Dear City Council members,

I am the owner of George's Coffee Shop on 5439 Sepulveda Blvd I have been the owner of this restaurant for 31 years.

A ban on foam food service containers would hurt us and our loyal customers. Please don't ban this product Alternatives are much more expensive We should recycle this Product like Los Angeles does

Thank you,

KI Soon KIM

George's COFFEE SHOP
Serving The Best BREAKFAST & LUNCH Since 1984
Monica Kim / owner
310.737.4238
Mon - Sat 6AM - 3PM
Sunday 7AM - 2PM

5439 Sepulveda Blvd. Culver City, CA 90230

August 24, 2016

Dear Culver City Council,

am the owner of The Patio Cafe located at 5803 Uplander Way. We are located on a business Plaza and we do a lot of breakfast and lunch to-go orders.

A ban on polystyrene would hurt our business a lot. Please, don't ban polystyrene, but recycle it.

Thank you,

Pok Sik Yi

310)645-8631

Dear City Council members

Industry Cafe & Jazz 6039 Washington Blvd
Culver City

I am the manager of Industry cafe & Jazz at 6039 Washington BLVD Culver City

We Do a lots of take out orders and using Styrofoam Products A band on this material would have a huge impact on our Business.

We ask you to not band Styrofoam, But instead find ways to recycle it

Thank you

[signature]

Aron Tadesse 8-23-16

8-5-16

Dear Mayor & City Councilmembers

Johnnies has been in business for 64 years and it's a very small business, and we use foam containers for our Chili dishes & coffee cups. This ban would hurt us because it would make it very difficult to keep prices down and customers happy. Please consider a recycle plan not a foam ban.

Thank You,

Sue Bass

Owner Johnnies Pastrami

8/8/16

To whom it may concern

Im writting on behalf of Cinco de Mayo tacos. We are aware of banning all Styrofoam items and that will hurt our business. All other items will be more expensive to have. So we will appreciate not banning them. We can find other solutions by recicling.

Sincerely,
Jessica Perez
Jessica Perez

August 5 2018

City Council Members,

I am the owner of New Pakistani Restaurant, Chargha House. This is a new restaurant and we have only been open for 3 months.

There are a lot of costs to opening a restaurant and banning foam containers would be very expensive for the business if the ban passes it will be hard to keep prices at good rates for our customers.

Please let small businesses recycle foam instead of banning it.

Thank you

Qamar Haidry

Dear Culver City Council,

I am the owner of Signature Burger.

We are located at 3835 Main St. In culver city.

Most of our sells are deliveries and pickups. We use polystyrene for packing the food, and by banning this product it will affect our budget and business expense.

Please consider recycling polystyrene, instead of banning it.

Thank you

Signature Burger

310-559-5222

Date

08/29/2016

September 12, 2016

Dear Culver City council,

I am the owner of Royal Chinese Restaurant. We use styrofoam for 100% of our orders. It is an affordable product. If we have to change to a different product it will really harm us because the costs will be more. We might not make any profit.

Please recycle styrofoam instead.

Thank you,

9/12/16

Cindy Lee Lao

ROYAL
CHINESE RESTAURANT
Mandarin & Szechwan Cuisine
EAT - IN or TAKE - OUT

JEFFERSON PLAZA
11469 Jefferson Boulevard
Culver City, Calif. 90230
(Corner of Jefferson & Sawtelle)
Tel.: (310) 390-7017

Business Hours:
Mon. - Sat. 11:00 am - 9:00 pm
Sunday 12:00 noon - 8:00 pm

September 12, 2016

Culver City Council,

I am the owner of Janga by Dericks Jamaican. We use styrofoam. I have tried other products and they are not as effective. Also, I hear that some of the paper boxes don't even get recycled.

Please don't ban foam food containers. Please recycle them like Los Angeles.

Thanks,

Derick Angus

Californians Against Waste

Conserving Resources. Preventing Pollution. Protecting the Environment.

September 13, 2016

Sustainability Subcommittee of the City Council
City Hall
9770 Culver Blvd
Culver City, CA 90232

RE: Polystyrene Ban - SUPPORT

Dear Sustainability Subcommittee Members of the City Council,

Californians Against Waste (CAW) is an environmental policy and advocacy organization with thousands of members across Southern California. We respectfully urge your support for the polystyrene ordinance scheduled to come before the Subcommittee on Wednesday September 14, 2016.

Polystyrene takeout food packaging is a major, and easily preventable, source of pollution. Light, easily airborne, and prone to break into small pieces, it can be easily transported by wind and rain into the environment even when "properly" disposed of. With Californians using 165,000 tons of polystyrene each year for packaging and food containers, it's no surprise that beach cleanup studies show polystyrene to be one of the most common forms of litter. Plastic pollution has killed thousands of marine birds, sea turtles and other species, and threatens both human health as well as California's multi-billion dollar ocean-based economy. According to the US EPA, local governments in California spend as much as $411 million each year to prevent plastic food packaging and other commonly littered items from ending up in streets, storm drains, beaches, rivers and the ocean. Those opposed to polystyrene alternatives due to cost differences don't take into account the burden and hidden cost of cleaning it up after use.

Recycling of this problem material is not a viable option. Despite decades of promises from the plastic industry for a comprehensive recycling infrastructure, no widespread recycling scheme for polystyrene has ever been successfully implemented over the long term. Along with limited recycling opportunities, food contamination issues and the lightweight quality of the material make it difficult to successfully recycle. Less than 1% is recycled. Moreover, due to the low market value of recycled polystyrene, recyclers can actually lose money.

Plastic pollution is a global problem with local solutions. Ninety seven cities and counties in California, including dozens of coastal communities, have already banned polystyrene. Such an accomplishment is a proven solution for combating waste as well as the costs associated with cleanup. We commend the City's leadership and urge you to recommend that the City Council pursue a polystyrene ordinance.

Sincerely,

Mark Murray
Executive Director

921 11th Street, Suite 420 • Sacramento, CA 95814 • (916) 443-5422 FAX: (916) 443-3912 • www.cawrecycles.org

August 11, 2016 Responses (in blue) to Mayor Jim Clarke's questions (in black).

Honorable Mayor Jim Clarke,

Here are my responses to your comments (in blue):

You raised an important issue last night that was not lost on me which was the possible carcinogenic properties of Styrene.

THANK YOU for your continued interest in this important matter!

I read the NIEHS report you included with your comments. Those limited studies which concluded that "Styrene is reasonably anticipated to be a human carcinogenic" were of workers in other countries involved in the manufacturing of products containing styrene. While I have sympathy for worker exposure is this comparable to normal everyday contact by consumers with polystyrene products? And are there also risks to workers involved in the manufacture of replacement products.

Yes, workers would have higher exposures than normal everyday contact by consumers. However, many more consumers have contact with polystyrene and styrene than workers, so the total potential number of cancer cases among consumers would be far greater.

And yes, you are correct, fast food chain using paper packaging often use paper treated with fluorocarbons (PFOA is a recent notorious example) for grease resistance. However, since the major chains are already sometimes using these materials, this is not a sufficient reason not to proceed with a styrofoam ban.

One person also last night stated that the FDA had concluded there were no health risks (or something to that effect) from polystyrene. Is this true and is there a dispute over whether it is or is not harmful?

The difference here is that the FDA is a regulatory agency, while NIEHS is a scientific institute. If the FDA were to conclude that polystyrene food containers were unsafe, no could use them. The FDA hasn't done this yet because safety information is still being accumulated. Meanwhile, the NIEHS's report indicates that evidence of carcinogenicity is likely to eventually be available. In other words, the FDA's actions lag behind the scientific body's assessment. In fact, in response to the 2011 NIEHS report, the FDA is currently updating its safety review of styrene in food products. As evidence of this, please see page 122 of the FDA's recent (2016?) report to congress:
http://www.fda.gov/downloads/food/guidanceregulation/fsma/ucm465172.pdf

You mention that when heated polystyrene will break down and release styrene. I recollect that Daniel Lee indicated the temperature was 175 degrees but I haven't seen anything definitive on this. Do you know what the temperature is and how this might be a problem for consumers ? I assume if someone were to place a Styrofoam food container in a microwave that might occur but more likely the Styrofoam would meld with the food making it inedible.

In preparing my response to your questions I contacted Dr. Jessica Helm of the Silent Spring Institute (Dr. Helm is also a Sierra Club Director). Dr. Helm referred me to a recent authoritative paper published by FDA researchers (Genualdi et al., 2013), which investigates the factors affecting leaching of styrene (and related molecules) into food packaged in styrofoam. The short answer is that there is no one temperature. As I anticipated in my comments Monday evening, leaching increases as temperatures increase. As evidence, I attach a second report by Linssen et al., which shows (Figure 3) a logarithmic increase in leaching as temperature increases from 10°C to 50°C. Remember that room temperature is ~25°C, so significant leaching happens far below the melting temperature of Styrofoam. The Genualdi et al. paper shows that leaching also depends on the fat content of material in contact with polystyrene (more leaching with higher fat), the composition of the polystyrene (softer Styrofoam appears to leach faster and more), and the duration of exposure.

Appreciate the efforts you take to inform us on this important issue and I look forward to your involvement in crafting an ordinance that can truly be of benefit to our residents and our environment.

The Sierra Club and many other organizations look forward to participating in the process!

Lastly, I didn't feel I received an adequate answer on two questions. One, why can't we recycle Styrofoam if Los Angeles is doing it and, second, why after nine years hasn't Santa Monica amended it's ordinance to include straws and utensils?

Regarding your first question: Although Los Angeles is accepting polystyrene in recycling bins, only the packing material is being recycled. I understand that the reason that Culver City doesn't include Styrofoam food containers is that they contaminate the rest of the recycling stream with food, which degrades the "recyclability" of the entire stream. Cleaning the Styrofoam food containers is possible but expensive and as Mr. Eriksson points out, their recycling value is less than the cost of recycling.

Regarding your second question: In preparing my response to your questions I spoke with Josephine Miller from Santa Monica's Sustainability Office. She stated that City of Santa Monica staff have not yet been directed by the SM City Council to look at a ban on polystyrene straws and utensils. Banning those is less of a win, as the alternatives are rarely composted or recycled, and typically end up in landfills anyway.

In conclusion, we urge Culver City to act to protect the public from the hazards of polystyrene. A ban on polystyrene would be an important step towards reducing the cumulative risk from the many carcinogens that we are exposed to. Thank you for your leadership on this issue.

With best regards,

David Haake, MD

cc. Joy Cernac, Shea Cunningham, Josephine Miller, Daniel Lee, Sandrine Cassidy Schmitt, Joe Galliani, Andy Shrader, Dr. Jessica Helm

PACKAGING TECHNOLOGY AND SCIENCE VOL 5 217–222 (1992)

Polystyrene Sheet Composition and Temperature as Parameters for Migration of Styrene Monomer into Corn Oil

J. P. H. Linssen*, J. C. E. Reitsma and J. P. Roozen
Wageningen Agricultural University, Dept of Food Science, PO Box 8129, 6700 EV Wageningen, The Netherlands

Different types of polystyrene used in packaging were tested for styrene monomer migration into corn oil. Several blends of general-purpose polystyrene with different amounts of high-impact polystyrene demonstrated a linear increase of migration of styrene with increasing amount of high-impact polystyrene in the polymer. Faster migration was found for higher exposure temperatures. Migration depended linearly on the content of residual styrene monomer in the polymer.

Keywords: Polystyrene; food packaging; sheet composition; temperature; styrene monomer content.

INTRODUCTION

Polystyrene (PS) is frequently used for packaging of foods. Examples of general-purpose polystyrene (GPPS) are foamed trays for meat and clear trays for salads and vegetables. Examples of high-impact polystyrene (HIPS), which consists of a PS matrix with a dispersed rubber phase, are packages for margarine and dairy products such as yoghurts. Migration from packaging materials is influenced by a number of variables:[1]

— the physical and physico-chemical properties of the polymer (e.g. density, crystallinity, branching, composition, surface roughness).
— the manufacturing process of the packaging material (extrusion, injection-moulding, blow moulding, deep-drawing);
— the physical and physicochemical properties of the mobile component (migrant) of the packaging material (e.g. molecular weight, polarity, solubility);
— the composition of the packaged product (e.g. fat or water content).

A model to predict the migration of components into oil at constant temperatures has been proposed by Reid *et al.*[2]

$$M_t = 2C_0\sqrt{\frac{Dt}{\pi}} \qquad (1)$$

where M_t is the mass of migrant migrated from polymer in time t, C_0 is the original concentration of the migrant in the polymer, t is the time and D is the diffusion coefficient of the migrant in the polymer. The model was applied to the migration of dioctyladipate from polyvinylchloride[3] and to the migration of styrene monomer from PS.[4] Also, Figge and coworkers[7–9] proposed a model at con-

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stant temperatures. The temperature dependence of diffusion is generally described by an Arrhenius type of correlation:[3,5,6]

$$D = A \cdot e^{-E/RT} \quad (2)$$

where D is the diffusion coefficient of the migrant in the polymer, T is the absolute temperature, R is the general gas constant, E is the activation energy and A is a constant.

From equations 1 and 2 a more general model for the prediction of migration can be derived

$$M_t = 2C_0 \sqrt{\frac{t}{\pi}} \cdot \sqrt{Ae^{-E/RT}} \quad (3)$$

which reduces to

$$M_t = KC_0 \sqrt{te^{-E/RT}} \quad (4)$$

where K is a complex constant.

The present study describes the migration of residual styrene monomer from different types of PS into corn oil. The influence of the amount of HIPS in several blends with GPPS and the effect of reduced contents of monomer in the polymer on the migration of styrene was investigated using both the immersion sampling method and the cell sampling method.[10] The influence of temperature on the migration of styrene monomer from a 1:1 blend of HIPS and GPPS was evaluated by the cell sampling method only.

MATERIALS AND METHODS

Materials

General-purpose polystyrene (GPPS: type Styron® 637 from Dow Chemical Company), high-impact polystyrene (HIPS: type Styron® 472 from Dow Chemical Company) and blends of both containing 3, 5, 10, 25, 50 and 75% HIPS were extruded into sheets of 1 mm thickness at ca. 220°C by Dow Benelux NV, Terneuzen, The Netherlands. The batch included also a range of 1 mm thick sheets of a 1:1 blend of GPPS and HIPS with reduced styrene monomer contents (see Table 2). Corn oil (Mazola) was bought in a local store at Wageningen (The Netherlands).

Sample preparation

The high-impact-grade polystyrene sheets were cut into the pieces necessary for sampling with a pair of scissors. For sampling in GPPS and in the blends of HIPS with GPPS containing 3% and 5% HIPS, the sheets were scratched with a sharp object and subsequently broken over the scratch.

Sampling methods

The influence of both the amount of HIPS in PS and the content of residual monomer in the polymer was evaluated by using the immersion sampling method and the cell sampling method.[10] For immersion sampling, a 1 dm^2 polystyrene sheet was cut into nine equal pieces, immersed in 50 g of corn oil in a tightly closed jar (all-sided contact) and incubated at 40°C.

Cells for sampling were made of a 10.8 mm thick Teflon ring with an inner diameter of 80.0 mm (Figure 1). The Teflon ring was sandwiched between two stainless-steel plates in analogy with Figge.[13] Two sheets of polystyrene were secured between the ring and plates in such a way that different sides of each sheet were in contact with the corn oil. Cells were filled with 50 g of corn oil, tightly closed and incubated at 40°C.

Using the cell sampling method, sheets of a 1:1 blend of GPPS and HIPS of 1 mm thickness were incubated at 10, 20, 30, 40 and 50°C for evaluation of the effect of temperature on styrene migration.

Styrene analysis

Residual styrene monomer was determined in the PS sheets by dissolving the polymer in dichloromethane and subsequently precipitating with isooctane. The clear upper layer was analysed with a gas chromatograph (Carlo Erba, model 4200) equipped with a flame ionization detector. The analyses were carried out on a 15 m × 0.53 mm (i.d.) wide-bore column (DB 225, J & W Scientific). The detection and injection temperature were 300°C and 250°C, respectively. The following temperature programme was used: an initial hold for 2 min at 40°C and then 5°C/min to 100°C and a final temperature hold for 2 min.[11]

Styrene monomer in corn oil was determined by azeotropic distillation with methanol followed by

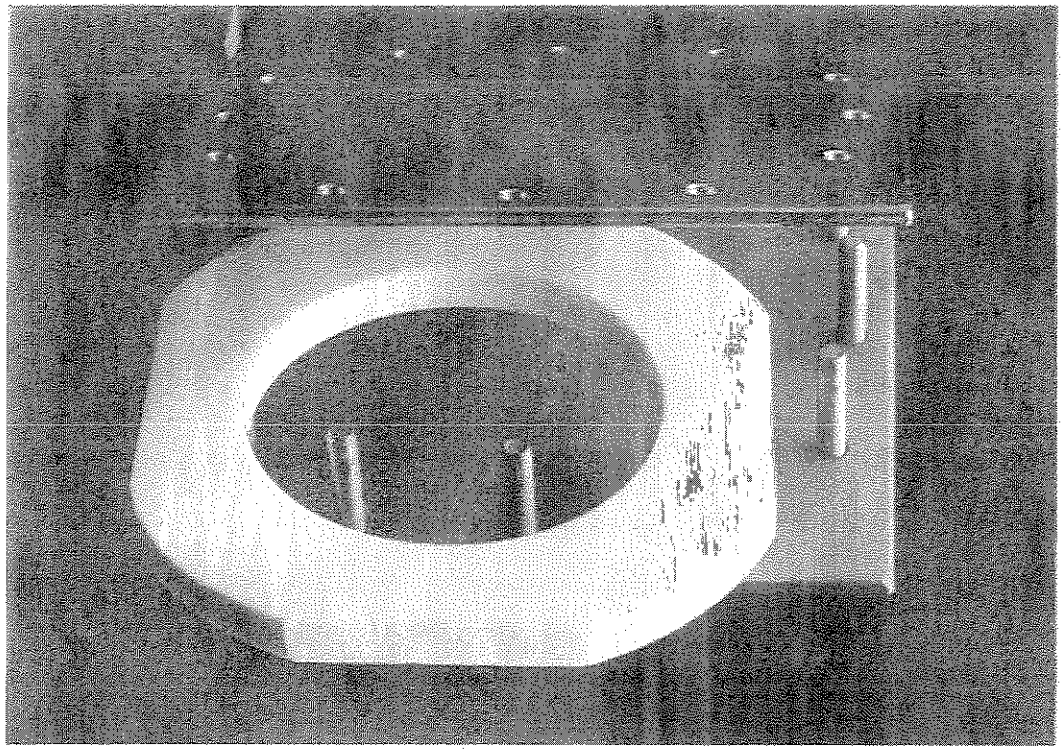

Figure 1. Sampling cell

extraction with pentane. The pentane extract was analysed with a gas chromatograph (Carlo Erba, model 4160), equipped with a flame ionization detector and a cold on-column injector. The analyses were carried out on a 30 m × 0.32 mm (i.d.) fused-silica capillary column (DB 1701, J & W Scientific). The detection temperature was 280°C. The following temperature programme was used: an initial hold of 4 min at 40°C and then 5°C/min to 90°C, followed by 15°C/min to 190°C and a final temperature hold for 1 min. A calibration curve was prepared by adding different amounts of styrene to the oil.[12]

RESULTS AND DISCUSSION

The contents of residual styrene monomer for the different PS samples were 285 ± 6 ppm ($n = 8$), except for those with a reduced monomer content (see Table 2).

Influence of different amounts of HIPS

Figure 2 shows the content of migrated styrene monomer in corn oil versus the amount of HIPS in several blends with GPPS. Migration increases linearly with increasing amounts of HIPS present in the polymer sample in both the immersion sampling method and the cell sampling method. Obviously diffusion of styrene monomer in the polymer increases with increasing amounts of rubber particles in the polymer blends of GPPS and HIPS. Immersion sampling results in higher amounts of migrated styrene (level and slope), possibly owing to damage of the rubber particles in the cut edges at the surface of the polymer promoting styrene transfer. Therefore, sampling cells give a

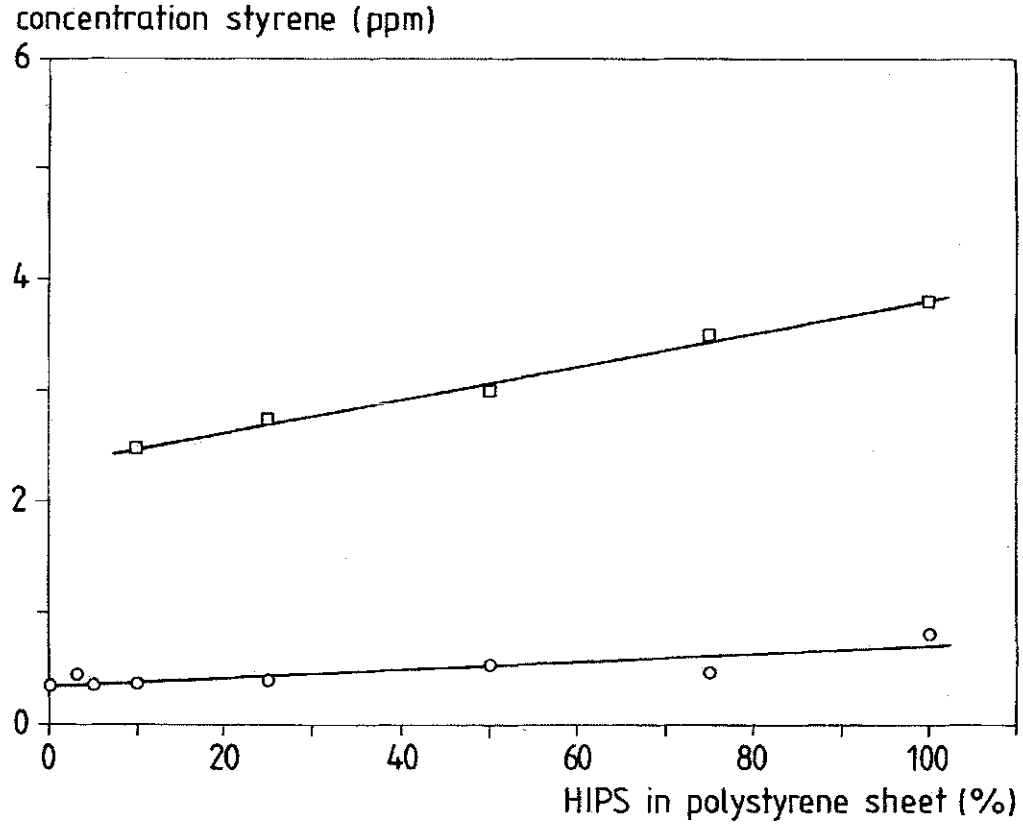

Figure 2. Effect of % HIPS in PS on the level of styrene migrated into corn oil after 21 days at 40°C using the immersion (□) and the cell (○) sampling method

more accurate representation of the migration behaviour in actual packaging applications. These findings confirm previous work.[10,14]

Temperature dependence

Table 1 gives the amounts of styrene migrated from 1 mm thick sheets of a 1:1 blend of GPPS and HIPS into corn oil after 14 days of incubation at different temperatures. The diffusion coefficient D was calculated for each temperature using Equation 1. Table 1 shows that the diffusion coefficient increases with increasing temperature from 4.7×10^{-16} cm^2/s at 10°C to 1.5×10^{-13} at 50°C. By comparison, Till *et al.*[4] reported D values of 2–5 ($\times 10^{-13}$) cm^2/s for GPPS with a residual styrene monomer content of 800 ppm at 40°C. Snyder and Breder[15] found D values of 2–3($\times 10^{-13}$) cm^2/s for GPPS with a monomer content of 4260 ppm at 40°C. Miltz and Rosen-Doody[16] calculated a D value of 5×10^{-10} cm^2/s for PS containing 1000 ppm residual monomer at 35°C. However, the latter value is too high, because their method

Table 1. Migrated amounts of styrene monomer and diffusion coefficients (D) for styrene in polystyrene ($C_0 = 279$ ppm) in contact with corn oil in a cell at different temperatures (T) after 14 days

T (°C)	Migrated amount of styrene (μg/cm^2)	D (cm^2/s)
10	0.0075	4.7×10^{-16}
20	0.0188	2.8×10^{-15}
30	0.0333	0.9×10^{-14}
40	0.0773	5.1×10^{-14}
50	0.1388	1.5×10^{-13}

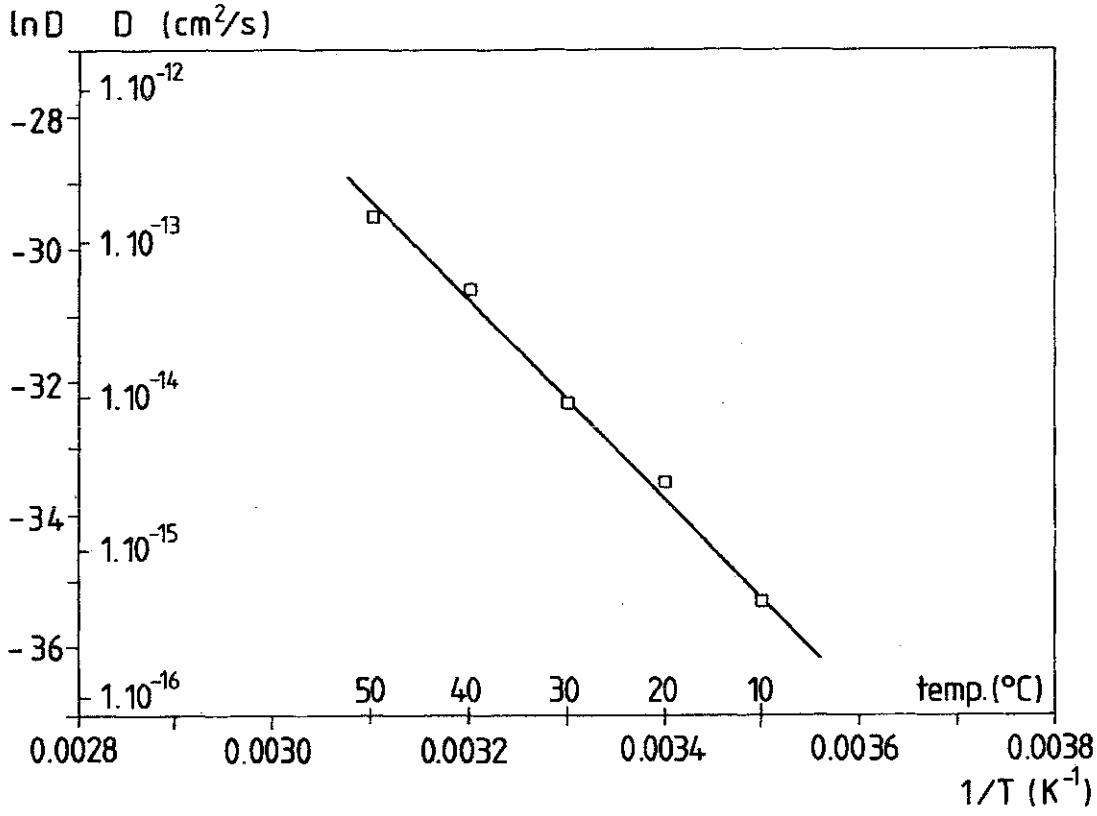

Figure 3. Diffusion coefficient (D) of styrene in PS (HIPS:GPPS 1:1) as a function of temperature as obtained from migration into corn oil

assumed already an equilibrium of styrene between polymer and contacting phase in an early stage. Using Equation 2, ln D vs. $1/T$ can be plotted in which E/R is the slope of the line. Figure 3 shows this relationship obtained from migration of styrene into corn oil. Linear regression results in

$$\ln D = 15.61 - 14\,500\ (1/T)\ (r = 0.99)$$

So, $E/R = 14\,500$ and the activation energy calculated is 12.0×10^4 J/mol. This is near the activation energy of 7.8×10^4 J/mol found for styrene migration in cut test coupons made of pressed GPPS.[4] The complex constant K from Equation 4 can be calculated from the activation energy found and the results of Table 1. A value of $K = 2620 \pm 323$ cm $s^{-1/2}$ ($n = 5$) was obtained. Equation 4 represents now a general formula for predicting the migration of styrene monomer from polystyrene (GPPS:HIPS = 1:1) into corn oil.

Effect of content of residual styrene monomer

Table 2 presents the effect of different contents of residual monomer on the migration of styrene into corn oil from a sheet of a 1:1 blend of GPPS and HIPS incubated at 40°C for 21 days. It demonstrates once more that sampling in migration cells results in much lower levels of migrated styrene than with immersion sampling. The cell sampling method shows about the same ratio for all the PS samples, which indicates a linear dependency between the contents of styrene in the polymer and the level of styrene migrated into corn oil. However, for immersion sampling this ratio is only similar for the PS samples with the three highest contents of styrene. The PS samples with the two lowest amounts of styrene in the polymer show increasing ratios between the contents of styrene in the poly-

Table 2. Contents of styrene in polystyrene samples (GPPS:HIPS 1:1) and contents of styrene in corn oil after 21 days of migration at 41°C using different sampling methods and the ratio between these contents

Styrene content in polystyrene (ppm)	Immersion sampling Styrene content in oil (ppb)	ratio	Cell sampling Styrene content in oil (ppb)	ratio
279 ± 4	2790	100	354	788
191 ± 5	2010	95	246	776
164 ± 4	1590	103	210	781
93 ± 2	660	141	120	775
42 ± 2	120	350	54	778

[a]Values are means of triplicates ± SD.

mer and the levels of styrene migrated into corn oil. Less styrene seems to be available for migration, especially from the cut edges. At a certain concentration of monomer, much less styrene is available for initial leakage from the rubber particles after cutting of the polymer.[10]

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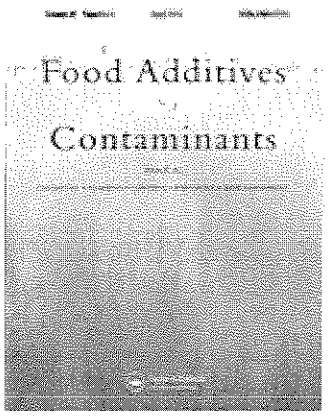

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Updated evaluation of the migration of styrene monomer and oligomers from polystyrene food contact materials to foods and food simulants

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Updated evaluation of the migration of styrene monomer and oligomers from polystyrene food contact materials to foods and food simulants

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Due to the 2011 labelling of styrene monomer as "reasonably anticipated to be a human carcinogen" by the National Institutes of Health's National Toxicology Program (NTP) and the controversy over whether styrene oligomers mimic the physiological effects of estrogen, an updated review of styrene monomer and oligomers in food and food contact materials (FCMs) was performed. The concentrations of styrene monomer and oligomers were determined in 24 polystyrene (PS) products and ranged from 9.3 to 3100 mg kg^{-1} for the styrene monomer, 130–2900 mg kg^{-1} for the sum of three styrene dimers, and 220–16,000 mg kg^{-1} for the sum of six styrene trimers. Foods in contact with PS packaging had styrene monomer concentrations ranging from 2.6 to 163 ng g^{-1}; dimer concentrations from the limit of quantitation (LOQ) to 4.8 ng g^{-1} and trimer concentrations were all below the LOQ (2 ng g^{-1}). Diffusion coefficients (D_p) and partition coefficients (K) were also calculated for styrene dimers and trimers. The results presented here indicate that styrene monomer concentrations in foods have not significantly changed since the 1980s and monomer concentrations in food packaging quantified in this study were all below USFDA limits. Although styrene dimers and trimers are present in higher concentrations in PS FCMs than the monomer, their migration to food is limited because of their high K values (4×10^2 to 2×10^6) and their low diffusion coefficients in PS products. Additionally, diffusion coefficients calculated using USFDA-recommended food simulants and Arrhenius plots describing the temperature dependence of styrene dimers and trimers can be used in future calculations of dietary intake of the styrene oligomers.

Keywords: styrene monomer; styrene dimer; styrene trimer; food packaging; diffusion coefficients; polystyrene; migration

Introduction

Polystyrene (PS) is widely used in the manufacture of food contact materials (FCMs), and in 2012, 50% of the domestic consumption of PS was related to food packaging and food service articles (American Chemistry Council 2013). Since 1991, the amount of PS used per year in food contact packaging and consumables increased from 2000 million to 2500 million pounds (lbs) in 1999 (Plastic Foodservice Packaging Group 2002). A recent estimate put domestic consumption at 2600 million lbs for 2012 (American Chemistry Council 2013). During the production process, the styrene monomer can become occluded in PS products and has the potential to migrate out of the FCMs and into the food. Styrene has known toxic effects on the central nervous system and neurological effects have been observed in workers continually exposed to styrene through inhalation (ASTDR's Toxicological Profiles 2010). Although no cases have been reported on the ingestion of styrene by humans, the systemic toxicity is expected to be similar to that of inhalation (ASTDR's Toxicological Profiles 2010). The USFDA regulates the amount of styrene monomer allowed in food grade PS at 1% by weight (10,000 mg kg^{-1}) for contact with non-fatty foods and at 0.5% by weight (5000 mg kg^{-1}) for contact with fatty foods of types III, IVA, V, VIIA and IX as described in Table 1 of 21 CFR 176.170(c) (Title 21 – Food and Drugs 2013). Under the same regulation, rubber-modified PS basic polymers may not exceed 0.5% by weight of total residual styrene monomer.

Recently, in 2011, styrene was listed as "reasonably anticipated to be a human carcinogen" by the National Toxicology Panel (NTP) (DHHS 2011). Prior to this, the IARC classified styrene as "possibly carcinogenic to humans" (World Health Organization 2002). Currently, the USEPA does not have a classification for the carcinogenicity of styrene in its Integrated Risk Information System (IRIS) (EPA 1998). As a result of the NTP's recent classification, the USFDA is updating its safety review of styrene by re-evaluating styrene concentrations in FCMs and foods contained in PS packaging.

Styrene dimers and trimers, which are also residual materials produced during polymerisation, have come under scrutiny due to conflicting reports suggesting they may or may not exhibit estrogenic activity (Ohno et al. 2001, 2003; Ohyama et al. 2001). Currently, the rate at which styrene dimers and trimers transfer from food packaging into foods is unclear. Due to their estimated low water solubilities (0.86–120 mg l^{-1} at 25°C for the dimers and 0.0013–0.00092 mg l^{-1} at 25°C for the trimers) (EPA 2013) compared with the

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Table 1. Concentrations (mg kg^{-1}) of styrene monomer and oligomers in food contact materials.

	Monomer (mg kg^{-1})	Dimers (mg kg^{-1})				Trimers (mg kg^{-1})							
	Styrene	1,3-Diphenyl propane	2,4-Diphenyl-1-butene	*trans*-1,2-Diphenyl cyclobutane	Sum of dimers	1,3,5-Triphenyl-cyclohexane	2,4,6-Triphenyl-1-hexene	1e-Phenyl-4e-(1-phenylethyl)-1,2,3,4-tetralin	1a-Phenyl-4e-(1-phenylethyl)-1,2,3,4-tetralin	1e-Phenyl-4a-(1-phenylethyl)-1,2,3,4-tetralin	1a-Phenyl-4a-(1-phenylethyl)-1,2,3,4-tetralin	Sum of trimers	Density (g cm^{-3})
Extruded polystyrene foam (XPS)													
Ground beef tray – black foam	221.8	10.77	140.0	26.92	177.7	<LOQ	669.2	193.5	346.2	91.15	131.5	1431	0.0525
Chicken tray – foam	349.5	15.00	169.2	54.23	238.5	<LOQ	1004	567.3	984.2	234.6	309.2	3099	0.0692
Take-out container – white foam	347.3	13.38	158.3	39.71	211.4	<LOQ	847.8	357.8	686.2	160.7	262.5	2315	0.1015
Expandable polystyrene (EPS)													
Styrofoam cup	33.73	6.939	114.7	13.06	134.7	<LOQ	153.5	14.29	34.69	4.082	11.02	217.6	0.0623
Noodle container – white foam	47.80	5.357	123.9	13.69	143.0	<LOQ	370.7	24.29	56.31	7.619	17.98	476.9	0.0760
High-impact polystyrene (HIPS)													
Black coffee lid	310.4	21.36	140.5	368.2	530.0	10.00	2918	1630	2764	700.5	1119	9131	1.075
White coffee lid – MI	299.7	17.36	158.1	404.2	579.6	<LOQ	2915	574.0	1076	258.1	366.0	5189	1.075
White coffee lid – NY	309.5	19.62	164.9	271.3	455.8	<LOQ	2302	742.6	1366	315.5	468.3	5194	1.075
White coffee lid – MD	270.7	11.15	97.69	377.3	486.2	<LOQ	1937	1545	2838	651.5	936.9	7909	1.075
Red disposable cup	361.8	6.250	<LOQ	206.3	212.5	<LOQ	692.6	1137	1992	503.8	753.3	5079	1.075
Blue disposable cup	74.89	7.692	138.1	164.6	310.4	<LOQ	1808	394.6	754.2	184.2	284.2	3425	1.075
Orange disposable cup	9.343	6.071	127.5	156.4	290.0	<LOQ	1965	370.7	702.1	159.6	255.7	3453	1.075
Red disposable bowl	518.4	34.40	178.0	291.2	503.6	<LOQ	2540	1389	2445	546.4	793.2	7714	1.075
Side sauce container	369.6	15.29	135.3	299.6	450.2	<LOQ	2174	682.4	1253	276.5	426.7	4812	1.075
Yoghurt container	485.5	15.83	172.1	432.5	620.4	<LOQ	1932	1035	1912	445.8	682.1	6007	1.075
Cookie tray	269.3	28.33	291.7	279.2	599.2	<LOQ	3491	1309	2369	548.3	864.6	8583	1.075
Chocolate candy tray	425.5	31.67	489.2	90.00	610.8	<LOQ	5652	2775	4841	1043	1432	15 743	1.075
White utensil	427.7	<LOQ	<LOQ	451.9	451.9	<LOQ	1132	1723	2862	920.8	906.8	7545	1.075

(*continued*)

Table 1. Continued.

	Monomer (mg kg^{-1})	Dimers (mg kg^{-1})				Trimers (mg kg^{-1})							
	Styrene	1,3-Diphenyl propane	2,4-Diphenyl-1-butene	*trans*-1,2-Diphenyl cyclobutane	Sum of dimers	1,3,5-Triphenyl-cyclohexane	2,4,6-Triphenyl-1-hexene	1e-Phenyl-4e-(1-phenylethyl)-1,2,3,4-tetralin	1a-Phenyl-4e-(1-phenylethyl)-1,2,3,4-tetralin	1e-Phenyl-4a-(1-phenylethyl)-1,2,3,4-tetralin	1a-Phenyl-4a-(1-phenylethyl)-1,2,3,4-tetralin	Sum of trimers	Density (g cm^{-3})
Clamshell – bakery container	219.1	17.79	343.2	21.97	382.9	<LOQ	1833	446.2	784.8	197.8	273.9	3535	1.075
Crystal utensil	2866	40.60	2045	827.4	2913	<LOQ	5116	2150	2411	1015	1557	12,250	1.075
Green reusable tumbler	648.3	6.415	84.53	79.62	170.6	<LOQ	768.2	481.5	807.9	155.8	288.7	2502	1.075
Salad tongs	735.9	12.45	216.6	311.3	540.4	<LOQ	3189	1803	3222	747.2	996.6	9957	1.075
General-purpose polystyrene (GPPS)													
Crystal cup	770.8	30.80	578.4	200.0	809.2	<LOQ	1601	1182	2343	524.4	800.4	6451	1.075
Acrylonitrile-butadiene-styrene (ABS)													
Water pitcher	3042	8.916	119.9	259.1	387.9	<LOQ	284.2	67.54	109.7	25.41	51.09	537.9	1.075

Notes: For calculations of C_{po} (ng cm^{-3}), the above concentrations were first converted to units of ng g^{-1} and then multiplied by the density of the PS material. Values represent the average of triplicate measurements with % RSDs ranging from 3 to 38.

styrene monomer (310 mg l^{-1} at 25°C) and increased molecular size (MW = 196–312 g mol^{-1} for the dimers/trimers versus 104 g mol^{-1} for the monomer), their diffusion coefficients are expected to be lower than that of the styrene monomer at approximately 3.0×10^{-13} (Murphy et al. 1992).

Coefficients for the diffusion of styrene monomer from PS into various food simulants (corn oil, sunflower oil, water and 8–95% ethanol solutions) have been well studied (Varner & Breder 1981a; Till et al. 1982; Snyder & Breder 1983, Snyder & Breder 1985; Miltz & Rosendoody 1985; Murphy et al. 1992; Lickly et al. 1995, 1997; Paraskevopoulou et al. 2012). A few studies have investigated the migration of styrene dimers and trimers into distilled water, heptane and 20% ethanol (Nakada et al. 2000; Choi et al. 2005). The use of heptane as a fatty food simulant is no longer recommended by the USFDA due to exaggerated effects on diffusion compared with that of a food oil. The USFDA-recommended food simulants include 95% ethanol and corn oil for fatty foods, 50% ethanol for foods containing greater than 15% alcohol by volume, and 10% ethanol for aqueous foods and foods containing less than 15% alcohol by volume (FDA 2007).

The styrene diffusion coefficient at 40°C in 95% ethanol has been established to be approximately 3.0×10^{-13} cm^2 s^{-1} in PS products obtained directly from industry (Murphy et al. 1992). PS used in food packaging and FCMs is typically modified in some way. For example, high-impact polystyrene (HIPS) is formed through the addition of a rubbery segment to the polymer backbone, typically polybutadiene, to form a more durable product. Foamed PS products are manufactured from general-purpose, or crystal grade, PS that has been treated with a blowing agent to produce expandable polystyrene (EPS) beads. These beads can be further expanded or extruded to form various food packaging products such as foam trays, take-out containers, egg cartons and drink cups. These modifications of PS, as well as the addition of modifiers and other additives, may impact the diffusion coefficients of migrants from the food packaging.

The diffusion of the migrants from the PS packaging can be described by Fick's second law. By assuming that no partitioning barrier exists between polymer and solvent and that no concentration gradients exist in the solvent phase because it is well mixed and that the solvent phase is infinite, Fick's law can be reduced to equation (1):

$$M_t = 2C_{po}(D_p t/\pi)^{1/2} \quad (1)$$

where M_t is the total amount of migrant that has been lost from the polymer per unit square area (ng cm^{-2}) at time t (s); C_{po} is the initial concentration of the migrant in the polymer per unit volume (ng cm^{-3}); and D_p is the empirical diffusion coefficient in the polymer (cm^2 s^{-1}). In this case, the diffusion coefficient can be determined by calculating the slope from the linear relationship between M_t/C_{po} and the square root of time.

The objectives of this study were: (1) to evaluate styrene monomer, dimer and trimer residues in several different types of FCMs; (2) to evaluate styrene monomer and oligomer concentrations in foods contained in PS packaging; and (3) to perform migration experiments to determine diffusion coefficients for the dimers and trimers using USFDA-recommended food simulants.

Results from these experiments will provide valuable data needed for updating dietary intake values for the styrene monomer and calculating dietary intake values for the styrene dimers and trimers.

Methods

Standards

Analytical standards were purchased from Sigma Aldrich (St. Louis, MO, USA) for the styrene monomer and deuterated d_8-styrene monomer, while the styrene oligomers were all purchased from Wako Chemical (Osaka, Japan).

Food contact materials

PS FCMs were purchased from local supermarkets in the Washington, DC, area; for a list of products, see Table 1. A previous method (Varner & Breder 1981b) for the extraction of styrene monomer was modified and applied to the extraction of oligomers from PS FCMs. Briefly, 0.5 g of material were placed in a vial with 15 ml of ethyl acetate. The polymer was dissolved through vortexing and shaking with a digital pulse mixer (Glas-Col, Terre Haute, IN, USA) Then, 1.5 ml of methanol were added to each vial and centrifuged for 5 min at 4000 rpm. Aliquots of 1.5 ml were filtered through a 0.2-μm PTFE syringe filter and, in some cases, also filtered through a 0.45-μm PTFE syringe filter into a 2 ml vial. Then, 7.5 μl of 10 000 mg kg^{-1} d_8-styrene (98%) solution was added as an internal standard to each filtered aliquot in a 2 ml vial. The seven-point calibration curve used for quantification ranged from 4 to 3700 mg kg^{-1}.

The recovery of this method was tested by creating a monomer and oligomer-free polymer by performing repeated extraction and precipitation steps until no migrants could be detected. This polymer was then spiked at 600 mg kg^{-1} with the styrene monomer and oligomers and the recoveries ranged from 86% to 130%. Analysis was performed using a Gerstel cooled injection system (CIS) 4 inlet (Linthicum Heights, MD, USA) and an

Agilent 6890 gas chromatograph (GC) interfaced to a 5975 mass spectrometer (MS) (Agilent, Santa Clara, CA, USA). Injection parameters were optimised to ensure that residual PS was not producing styrene monomer and oligomers in the inlet. An initial inlet temperature of 200°C was used for a 10:1 split injection and after 20 min it was increased to 350°C at 12°C min^{-1} and held for 10 min. The oven temperature programme initially started out at 50°C, was ramped by 15°C min^{-1} to 310°C and followed by a 12 min hold. A Restek high-temperature column (Rxi®-5HT, 30 m × 0.25 mm i.d. × 0.25 µm film thickness) with stationary phase diphenyl dimethyl polysiloxane was used for separation. The auxiliary zone temperature was 280°C and the source and quadrupole temperatures were 250°C and 150°C, respectively.

Food–styrene monomer

Food products analysed consisted of those in contact with PS packaging and can be found in Table 2. Additionally chewing gum was analysed because of the use of styrene butadiene in the gum base. A validated vacuum distillation-gas chromatography-mass spectrometry (VD-GC-MS) method was used for the analysis of styrene monomer in food (Nyman et al. 2013). Briefly, 2 g of food were pulverised to a powder using a Cuisinart mini-prep food processor and transferred to a round bottom flask. Internal standard (20 µl of 10 ng g^{-1} d_8-styrene) was added to each round bottom flask in addition to 1 ml of water. The instrumental details and parameters have been previously described (Nyman et al. 2013). Standard addition was used for the quantification of each individual food type with linear five-point calibration curves.

Food–styrene oligomers

Extraction scheme E3 of the QuECheRs method previously used for the analysis of polycyclic aromatic hydrocarbons in fatty fish (Forsberg et al. 2011) was used for the analysis of styrene oligomers from foods in contact with PS packaging. The final sample volume was 200 µl and 10 µl of 1 ng g^{-1} d_8-styrene internal standard was added to each vial. The LOQ was 2 ng g^{-1} and corresponded to an analyte *S:N* ratio of 10:1. The eight-point calibration curve used for quantification ranged from 2 to 1000 ng g^{-1} Analysis was performed using an Agilent 6890 GC and 5973 MS and the same column (Rxi®-5HT) as used with the FCMs. The injection was splitless at 300°C, and the oven temperature programme had an initial temperature of 50°C, followed by a 1 min hold, a ramp rate of 15°C min^{-1} to 340°C and a final hold for 10 min. The auxiliary zone temperature was 340°C and the source and quadrupole temperatures were 230°C and 150°C, respectively.

Migration experiments and food simulants

Since the concentrations of styrene dimers and trimers were expected to be low, the ratio of FCM to food simulant was maximised in the two-sided migration cells. USFDA guidelines assume that 1 in^2 of packaging is in contact with 10 g of food (FDA 2007). In this study, 1.8–3.7 in^2 of packaging were placed in contact with 10 g of the food simulant in the migration cells, with the exact area dependent on the geometry of the FCM. The cells were mounted on a Glas-Col vial rotator at 20 rpm in an oven and removed starting at 2-h exposure time up to 10 days. This rotation speed has been shown to help reduce the resistance to mass transfer (Limm & Hollifield 1995). The analysis of migration solutions was performed using solid-phase micro-extraction (SPME) with a 30 µm polydimethylsiloxane (PDMS) fibre. Aliquots (2 ml) of food simulant were added to 20 ml SPME vials with 10 ml deionised water and 60 µl of 10 ng $µl^{-1}$ d_8-styrene as the internal standard. The parameters for the Gerstel MPS2 (Linthicum, MD, USA) were optimised for incubation temperature (90°C), incubation

Table 2. Concentrations (ng g^{-1}) of styrene monomer in foods (n = 3) held in contact with PS packaging and also chewing gum that contains styrene-butadiene as a gum base.

Food samples	Amount (ng g^{-1})	% RSD	Gilbert and Startin (1983) (ng g^{-1})	Heikes et al. (1995) (ng g^{-1})	Fleming-Jones and Smith (2003) (ng g^{-1})
Yoghurt	3.71	13	4	3.9–240	
Raw chicken	2.58	7.1	63		
Bakery croissants	44.2	3.6			
Sandwich cookies	163	2.1		216	15–165
Chocolate candies	38.8	8.9			
Noodle soup	4.33	1.9			
Raw ground beef	5.60	16	20		4–13
Chocolate chip cookies	107	10			15–111
Chewing gum #1	21.9	10.0			
Chewing gum #2	10.5	11			

time (4 min), extraction time (20 min) and desorption time (120 s). For 7 min before and after each sample, the PDMS fibre was baked out at 280°C. A pulsed split injection was used with a split ratio of 10:1 and an inlet temperature of 280°C. The initial GC oven temperature was 50°C, with a 1 min hold, followed by a ramp of 15° C min^{-1} to 300°C and a final hold time of 5 min. A 5975T GC-MS was used for analysis with a HP-5 LTM column (30 m × 0.25 mm i.d. × 0.25 μm film thickness), and the isothermal oven was kept at 280°C, along with the auxiliary zone temperature. The MS source and quadrupole were 230°C and 150°C, respectively. The LOQ for all compounds in all food simulants was 1 ng g^{-1}.

Results

Styrene monomer and oligomers in polystyrene food contact materials

Table 1 reports the concentrations of styrene monomer and the styrene dimers and trimers found in 24 different types of PS FCMs. Disposable food contact articles that were analysed included utensils, bowls, cups, cup lids and take-out containers, while PS food packaging in direct contact with food that was analysed included meat trays, yoghurt containers, cookie trays and chocolate candy trays. The styrene monomer concentrations quantified in this study ranged from 9.3 to 3100 mg kg^{-1}, with a mean concentration of 340 mg kg^{-1}. All these concentrations were below USFDA limits for styrene in food packaging materials, which is 5000 mg kg^{-1} for fatty foods and 10 000 mg kg^{-1} for aqueous foods (Title 21 – Food and Drugs 2013). There are currently no regulations for the styrene dimers and trimers present in FCMs. Results in Table 1 show the sum of dimer concentrations ranged from 130 to 2900 mg kg^{-1} with an average of 500 mg kg^{-1}, and the sum of trimer concentrations ranged from 220 to 16 000 mg kg^{-1} with an average of 580 mg kg^{-1}. These values compare well with previous measurements (Nakada et al. 2000) that found total dimer concentrations ranging from 170 to 420 mg kg^{-1} and trimer concentrations ranging from 3200 to 12,000 mg kg^{-1} in plastic containers (instant noodle bowls, plastic cups, lunch containers). The concentrations reported in Table 1 will be further used in the calculation of diffusion coefficients for the styrene dimers and trimers.

Styrene monomer in food

Styrene monomer was quantified in foods in contact with PS packaging and also in chewing gums that use styrene-butadiene as a chewing gum base (Table 2). Concentrations of styrene ranged from 2.6 ng g^{-1} in raw chicken to 163 ng g^{-1} in sandwich cookies. Previous studies have measured styrene concentrations in some of the same foods investigated in this study (raw chicken, fruit yoghurt, raw beef, chocolate chip cookies and sandwich cookies). These values can be found in Table 2 and represent data from studies published in 1983, 1995 and 2003 (Gilbert & Startin 1983; Heikes et al. 1995; Fleming-Jones & Smith 2003). Although the data are limited, it appears that the styrene concentrations measured in this study are consistent with those previously reported.

Styrene oligomers in food

A QuECheRs method was used for the analysis of the dimers and trimers in the following seven foods: cookies, yoghurt, chocolate candy, raw chicken, raw beef, bakery croissants and noodle soup. Only one dimer, 1,3-diphenyl propane, was quantified in three of these foods (raw chicken, yoghurt, chocolate candy) with concentrations less than 5 ng g^{-1}. This analyte is the smallest oligomer and has the highest estimated water solubility (120 mg l^{-1}) (EPA 2013) compared with the other dimers and trimers, which all have estimated water solubilities less than 1 mg l^{-1} (EPA 2013). The transfer of styrene dimers and trimers to hot noodle soups and noodles was previously investigated in HIPS bowls (Kawamura et al. 1998). The sum of styrene trimers was less than 63 ng g^{-1} in all soup samples and no dimers were quantified above 5 ng g^{-1} (the reported LOQ) (Kawamura et al. 1998). Additionally, styrene dimers and trimers were not detected above the LOQ in the plain noodles. From these limited studies, it appears that styrene dimers and trimers do not readily transfer to food, therefore additional migration testing will be carried out to further investigate this process.

Diffusion coefficients for styrene monomer and oligomers

In this study, eight common PS FCMs were subjected to migration testing and evaluated for their diffusion coefficients in three different food simulants (10% ethanol, 50% ethanol and 95% ethanol). Five of the FCMs were HIPS materials, along with one XPS, one EPS and one GPPS. Since the styrene oligomers have low water solubilities, partitioning will likely slow the migration rate and reduce the quantity of migrant oligomers in foods. Therefore, only the early stage of migration, where the relationship between M_t/C_{po} and the square root of time is linear per equation (1), was used for calculating the diffusion coefficients. An example of this relationship for a blue cup (HIPS) is found in Figure 1. In this example, the linear region extends up to square root of time (s) = 415, or 48 h. Then the curve becomes curvilinear and begins to approach equilibrium. For some materials, the diffusion coefficients could not be calculated using the linear

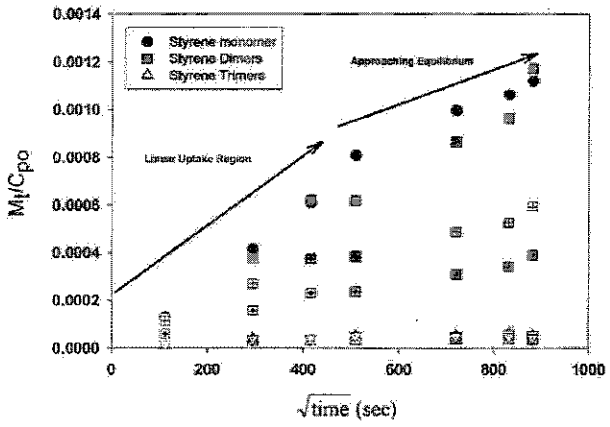

Figure 1. Uptake curves over 10 days (√time (s) = 930) for blue cup (HIPS) in 95% ethanol at 40°C. The linear uptake region extends to 48 h (√time (s) = 415), and beyond this time the dimers and trimers begin to approach or reach equilibrium.

portion of the curve either due to the migration from the polymer to the food simulant being less than the LOQ of 1 ng g^{-1}, or due to a limited linear range resulting from equilibrium being reached quickly with the food simulant. Previous studies report that styrene monomer migration is partition-limited in aqueous solvents, but not in food oil; and that little or no partitioning effect is evident in any food simulant (fatty or aqueous) over short exposure times of less than 1 day (Varner & Breder 1981a; Till et al. 1982; Snyder & Breder 1985). Therefore, diffusion coefficients for the monomer have also been estimated using equation (1) and the M_t values determined at the 24-h exposure time (Snyder & Breder 1985).

The apparent diffusion coefficients for the styrene monomer, dimers and trimers in eight different food contact articles in 95% ethanol at 40°C are presented in Table 3. When the diffusion coefficients could not be calculated using the linear relationship of M_t/C_{po} versus the square root of time, they were calculated using equation (1) and the M_t values at the shortest exposure time (<4 h). Unlike the styrene monomer, the dimers and trimers showed partitioning effects much earlier than 24 h, in as early as 8 h. Therefore, exposures less than 8 h were necessary to estimate the apparent diffusion coefficients for the dimers and trimers. Solutions of 50% ethanol and 10% ethanol were also used in migration experiments to attempt to calculate diffusion coefficients for the dimers and trimers. The use of 50% ethanol is preferred for migration tests from PS over 95% ethanol to avoid potential exaggerated migration (FDA 2007). But since the migration of the dimers and trimers are largely partition-limited and the amounts migrating from the polymer are very low, few results were obtained with these food simulants. Therefore, only the results from the experiments involving 95% ethanol (a worst case scenario) will be described. In 95% ethanol, the fastest diffusion appeared to take place from the foam tray (XPS), and the slowest diffusion was from the HIPS products.

Based on the concentrations quantified in 95% ethanol at equilibrium and the initial concentrations of styrene dimers and trimers in the FCMs (Table 1), partition coefficients (K) were determined when possible (Table 4). Partition coefficients ($K_{p,s} = C_p/C_s$) are defined as the concentration in the polymer C_p (g cm^{-3}) over the concentration in the food simulant C_s (g cm^{-3}) at equilibrium. The FCMs with the fastest diffusion rates had K values ranging from 10^2 to 10^3, while the materials with the slower diffusion rates had K values from 10^4 to 10^6 in magnitude (Table 4). These high K values for 95% ethanol, a simulant for oily foods, indicate that styrene dimers and trimers are more likely to stay in the PS packaging material and resist transfer to oily foods. The transfer of the dimers and trimers to 50% and 10% ethanol representing fatty and aqueous foods is expected to be even lower than that to oily foods based on both their low water solubilities and quick partitioning.

In order to investigate the diffusion coefficients where partitioning was not an issue, migration experiments were also performed in corn oil. Ten-day migration experiments using a meat tray, crystal cup and blue cup were conducted at 40°C. Linear curves are presented in Figure 2 for styrene monomer in corn oil where samples were analysed using the VD-GC-MS method previously described. The analysis of styrene dimers and trimers in corn oil is more challenging due to their low volatility and will be presented at a later date. Results in Figure 2 show the migration of styrene monomer into corn oil is linear and follows Fickian diffusion over the full 10-day period. The apparent diffusion coefficients were calculated to be 2.6×10^{-9} cm^2 s^{-1} for the foam meat tray, 7.8×10^{-10} cm^2 s^{-1} for the crystal cup and 1.5×10^{-10} cm^2 s^{-1} for the blue cup. The diffusion coefficient for styrene in the meat tray is comparable with previous experiments examining PS foam products with Crisco oil as a food simulant that found mean diffusion coefficients ranging from 4.2×10^{-9} to 8.8×10^{-12} cm^2 s^{-1} from temperatures of 20–65°C (Lickly et al. 1995). Other experiments investigating the diffusion coefficient of styrene monomer in corn oil at 40°C used 98% pure commercial PS (Till et al. 1982) and a PS standard from Aldrich cat. #18242-7 (Snyder & Breder 1985). The diffusion coefficients in these studies were determined to be 4.0×10^{-13} and 3.0×10^{-13} cm^2 s^{-1}, respectively.

Diffusion coefficients may be estimated based on models that have been previously described (Begley et al. 2005). Using this approach, diffusion coefficients for styrene monomer at 40°C in HIPS and GPPS were calculated to be 4.5×10^{-14} and 1.6×10^{-14} cm^2 s^{-1},

Table 3. Apparent diffusion coefficients calculated at 40°C using 95% ethanol as a food simulant.

Name	D_p (cm^2 s^{-1}) Yoghurt container (HIPS)	D_p (cm^2 s^{-1}) Cookie tray (HIPS)	D_p (cm^2 s^{-1}) Chocolate tray (HIPS)	D_p (cm^2 s^{-1}) Bakery clamshell container (HIPS)	D_p (cm^2 s^{-1}) Foam takeout container (XPS)	D_p (cm^2 s^{-1}) Meat tray (XPS)	D_p (cm^2 s^{-1}) Clear blue cup (HIPS)	D_p (cm^2 s^{-1}) Crystal cup (GPPS)
Styrene	1.13E–13	1.88E–14	1.70E–14	6.54E–14	8.94E–12	1.42E–09	8.18E–12	3.11E–10
1,3-Diphenyl propane	8.00E–17	3.14E–14	2.43E–14	3.53E–14	6.39E–12	8.95E–09	5.26E–12	6.40E–11
2,4-Diphenyl 1-butene	6.04E–16	1.89E–15	8.01E–16	3.07E–15	1.05E–12	7.87E–09	5.11E–13	3.86E–11
trans-1,2-Diphenyl cyclobutane	4.10E–15	1.21E–16	2.15E–15	4.43E–15	1.14E–12	2.31E–09	1.16E–12	6.30E–11
1,3,5-Triphenyl-cyclohexane	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2,4,6-Triphenyl-1-hexene	9.88E–18	7.30E–18	5.12E–18	6.93E–17	2.15E–14	4.62E–11	1.18E–14	8.31E–13
1e-Phenyl-4e(1-phenylethyl) 1,2,3,4-tetralin	1.40E–16	6.74E–18	1.05E–17	2.41E–16	4.82E–13	3.54E–11	4.20E–14	6.40E–13
1a-Phenyl-4e(1-phenylethyl) 1,2,3,4-tetralin	1.07E–16	5.72E–18	8.96E–18	2.24E–16	5.08E–13	4.64E–11	2.72E–14	7.70E–13
1e-Phenyl-4a(1-phenylethyl) 1,2,3,4-tetralin	1.29E–16	1.42E–17	2.10E–17	3.10E–16	7.89E–13	6.62E–11	5.45E–14	9.23E–13
1a-Phenyl-4a(1-phenylethyl) 1,2,3,4-tetralin	8.90E–17	8.70E–18	1.70E–17	3.04E–16	4.62E–13	7.16E–11	3.87E–14	7.53E–13

Notes: D_p is calculated from M_t at approximately 2 h exposure.
n.a., Not applicable (1,3,5-triphenyl-cyclohexane below LOQ in all packaging materials).

Table 4. Partition coefficients calculated from migration into 95% ethanol at 40°C ($K = C_p/C_s$).

Name	K Yoghurt container (HIPS)	K Cookie tray (HIPS)	K Chocolate tray (HIPS)	K Bakery clamshell container (HIPS)	K Foam takeout container (XPS)	K Meat tray (XPS)	K Clear blue cup (HIPS)	K Crystal cup (GPPS)
Styrene	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1,3-Diphenyl propane	1.1E+04	2.2E+04	2.4E+04	n.a.	n.a.	n.a.	n.a.	3.9E+02
2,4-Diphenyl 1-butene	4.0E+04	5.5E+04	1.2E+05	n.a.	n.a.	n.a.	n.a.	3.9E+02
trans-1,2-Diphenyl cyclobutane	2.0E+04	2.7E+05	7.9E+04	n.a.	n.a.	n.a.	n.a.	3.3E+02
1,3,5-Triphenyl-cyclohexane	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
2,4,6-Triphenyl-1-hexene	5.0E+05	1.2E+06	2.0E+06	n.a.	n.a.	3.8E+03	1.3E+04	3.5E+03
1e-Phenyl-4e(1-phenylethyl) 1,2,3,4-tetralin	1.8E+05	1.3E+06	1.3E+06	3.5E+05	6.4E+03	3.8E+03	7.5E+03	3.3E+03
1a-Phenyl-4e(1-phenylethyl) 1,2,3,4-tetralin	4.6E+05	1.3E+06	1.4E+06	3.5E+05	6.2E+03	3.8E+03	9.2E+03	3.6E+03
1e-Phenyl-4a(1-phenylethyl) 1,2,3,4-tetralin	2.1E+05	9.2E+05	8.8E+05	2.8E+05	5.3E+03	3.5E+03	7.5E+03	3.2E+03
1a-Phenyl-4a(1-phenylethyl) 1,2,3,4-tetralin	2.1E+05	1.1E+06	1.0E+06	3.0E+05	5.8E+03	3.5E+03	9.2E+03	3.7E+03

Note: n.a. indicates that the partition coefficient could not be calculated due to either the equilibrium not being reached or the concentration was below the LOQ in the FCM.

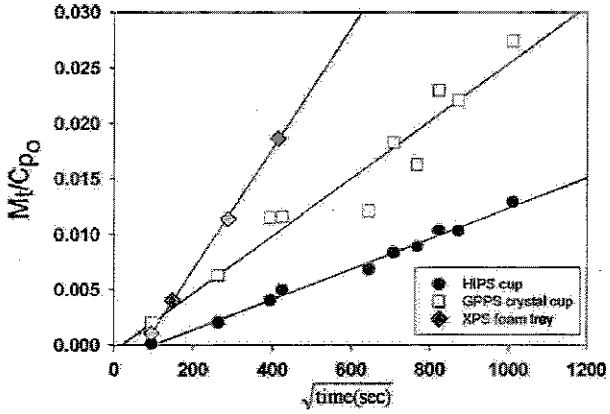

Figure 2. Diffusion of styrene monomer from PS food contact materials to corn oil over 10 days at 40°C.

respectively. These estimates are in good agreement with styrene monomer migration data for the first four samples (HIPS) in Table 3, in spite of the use of 95% ethanol. The remaining four PS packaging samples in Table 3 have much higher diffusion coefficients than modelling estimates. Two of the samples are EPS (foam takeout container) and XPS (meat tray) that are expected to be more porous than HIPS or GPPS, so their high diffusion rates are not unexpected.

The remaining two samples in Table 3 were a blue cup (HIPS) and crystal cup (GPPS) and have diffusion coefficients that are substantially higher than modelling estimates. In addition, their apparent diffusion coefficients to corn oil are also high at 7.8×10^{-10} and 1.5×10^{-10} cm^2 s^{-1}, respectively. These high diffusion data suggest that PS morphology of these samples may be different from other HIPS and GPPS samples. The diffusion of styrene monomer has been shown to increase with increasing amounts of rubber particles in HIPS and with the use of cut edges in immersion sampling (Linssen et al. 1992). The cut edges are more pronounced with the crystal cup (GPPS) due to its brittleness compared with other PS products. Therefore, the greater diffusion observed in these two products could be related to the higher amounts of rubber particles in the blue cup compared with the other HIPS products and more pronounced edge effects resulting from cutting the brittle crystal cup.

The temperature dependence of styrene dimers and trimers migration from the blue cup, crystal cup and foam tray was investigated by performing migration experiments at 30°C, 40°C and 50°C into 95% ethanol. Diffusion coefficients were calculated for styrene trimers at 50°C, using the M_t value at the shortest exposure time (2 h) due to rapid diffusion that leads to equilibrium being reached in less than 8 h. Linear regression equations for $\log D_p$ versus $1/T$ (K) are presented in Table 5 for the monomer, and for the averages of the dimers and trimers. As expected, the rate of diffusion increased with increasing temperature. These relationships are needed in calculating dietary intake values to account of the differences in diffusion rates for foods that are stored at different temperatures.

Discussion

The re-evaluation of styrene monomer in foods and FCMs was necessary due to the recent labelling of styrene as "reasonably anticipated to be a human carcinogen" by the NTP. The results presented here indicate that styrene monomer concentrations in food have not significantly changed since the 1980s and that the styrene monomer concentrations in all the FCMs evaluated in this study were below USFDA limits. Additionally, there have been only a few studies investigating the potential migration of styrene dimers and trimers to food and none has examined their migration into USFDA-recommended food simulants. Based on the low concentrations (<5 ng g^{-1}) of styrene dimers and trimers quantified in food, the apparent diffusion coefficients and large partition coefficients calculated here, the migration of these compounds is expected to be low and largely partition-limited. Additionally, the results presented here can be used in future assessments of the dietary intake of styrene, and for the first time, the dietary intake of styrene dimers and trimers.

Table 5. Regression equations for the temperature dependence of styrene monomer, dimers, and trimers at 30°C, 40°C, and 50°C.

	Meat tray		Blue cup		Crystal cup	
	Slope	y-intercept	Slope	y-intercept	Slope	y-intercept
Styrene monomer	−4612	6.1	−7602	12.4	−5304	7.0
Average styrene dimers	−4015	3.2	−8603	15.4	−6579	10.8
Average styrene trimers	−4344	2.6	−7842	11.4	−8725	15.6

Note: Linear regression equations ($\log D_p$ = slope $(1/T)$ + y-intercept).

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SURFRIDER FOUNDATION

Expanded Polystyrene Bans
"Hold the Foam"

Number of California Cities & Counties covered by an EPS ordinance – at least 97 (see Californians Against Waste website, here: http://www.cawrecycles.org/polystyrene-local-ordinances/)

Recently expanded EPS bans

- San Francisco, CA - prohibits the *sale* and *distribution* of non-compliant foam food ware; prohibits food vendors and restaurants (and the city) from *using* non-compliant foam food ware; and prohibits the *sale or distribution* of non-encapsulated foam coolers, pool or beach toys, packing materials, dock floats, etc. (See ordinance here: https://sfgov.legistar.com/View.ashx?M=F&ID=4607860&GUID=8CD8DC94-408D-4F02-9938-C7E160C4AA94)

- Manhattan Beach, CA - revised their existing EPS ordinance to prohibit the *sale* of any polystyrene food ware or polystyrene foam coolers where the foam is not fully encased in another material. (see attachment)

- Miami Beach, FL - in addition to a prohibition on food vendors selling or using polystyrene foam food ware, prohibits people from carrying any expanded polystyrene product on to any beach or park within the city. (see Miami Beach Municipal Code Section 46.92(c): "Prohibitions on beaches, marinas, piers, docks, boat ramps, and in parks. It shall be unlawful for any person to carry onto any beach within the city a glass or metal bottle or other glass or metal container. In addition, it shall be unlawful for any person to carry any expanded polystyrene product onto any beach or park within the city, or onto any city marina, pier, dock, or boat ramp, or for any business to provide plastic straws with the service or delivery of any beverage to patrons on any beach within the city." available at https://www.municode.com/library/fl/miami_beach/codes/code_of_ordinances?nodeId=SPAGEOR_CH46EN_ARTVIEXPOSAUSRE)

- Malibu, CA - Last month (August 2016), the Malibu City Council unanimously voted to direct staff to move forward with developing an ordinance to expand their existing EPS ordinance to address things like unencapsulated foam coolers.
  (See hearing and council discussion at http://malibu.granicus.com/MediaPlayer.php?view_id=4&clip_id=1245 (item 7A))

Effective non-recyclability

- While EPS foam is technically recyclable, it is still relatively rarely collected in curbside municipal recycling programs. For example, see this Chicago Tribune article regarding lack of recyclability options http://www.chicagotribune.com/news/local/ct-styrofoam-recycling-centers-met-20160818-story.html
- Polystyrene foam is barred from some cities' recycling programs because it's difficult to sell, and easily contaminated by other materials in recycling bins, which makes it difficult to sort. Further, food-soiled EPS is typically not accepted by recyclers and is instead treated as waste, and landfilled.[1]
- EPA has found that 3.8 percent of polystyrene (includes rigid and expanded polystyrene) is recycled.[2]
- Another article reports that only 1.3% of all polystyrene discarded in 2013 was recycled, according to the EPA.[3]

Health Concerns

- Use of polystyrene in any form poses considerable health concerns. The production of styrene, a component of polystyrene, carries occupational safety risks. The International Agency for Research on Cancer determined that styrene is a possible human carcinogen. In 2009 the California Office of Environmental Health Hazard Assessment proposed that styrene be listed as a known human carcinogen. Several epidemiological studies suggest an association between occupational styrene exposure and an increased risk of leukemia and lymphoma. [4]

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[1] See, e.g., http://blog.savesfbay.org/2013/08/foam-industry-spreads-misinformation-lobbies-against-san-jose-ban/; and http://www.chicagotribune.com/news/local/ct-styrofoam-recycling-centers-met-20160818-story.html

[2] At https://www.nrdc.org/sites/default/files/consumer-goods-packaging-report.pdf, p. 15, citing https://archive.epa.gov/epawaste/nonhaz/municipal/web/pdf/2012_msw_dat_tbls.pdf, at Table 7.

[3] See http://www.chicagotribune.com/news/local/ct-styrofoam-recycling-centers-met-20160818-story.html

[4] See https://www.nrdc.org/sites/default/files/consumer-goods-packaging-report.pdf, at p. 15, citing the Agency for toxic Substances and Disease Registry, *Public Health Statement: Styrene*, June 2012, and Clean Water Action, *Health Effects and Regulation of Styrene (CASRN 100- 42-5)*, 2012

Results // Case Studies of Jurisdictions with Bans

- See, e.g, "An Assessment of Policies on Polystyrene Food Ware Bans," by Linda D. Nguyen (10-1-2012), which highlights experiences of Portland, OR (1990); San Francisco, CA (2007); and Seattle, WA (2009) with their EPS ordinances.[5]
    - According to city staff, San Francisco had little resistance from the community because many food vendors had already switched from EPS.[6]
    - One year after implementation of the San Francisco ordinance that prohibits the use of EPS food ware, San Francisco's litter audit showed a 36% decrease in EPS litter.[7]
    - San Francisco saw a 41% reduction in litter over the 3 years after the ordinance went into effect, as documented by city-conducted litter audits of city streets and sidewalks.[8]
    - San Francisco conducted an impressive outreach campaign before and after the passage of their ordinance. This included not only letters and notice in popular channels such as newspapers, but also direct contact with all affected establishments. Outreach started three to four months before passage of the ordinance, and included six meetings held at various neighborhoods with the assistance of neighborhood associations.[9]
    - While Portland had not conducted any studies and did not have any statistics at the time of Nguyen's 2012 study, Portland did report "that a definite change in litter has been noted."[10]
    - Portland's ordinance shows how businesses can adapt and change behavior; after losing a lawsuit challenging the ordinance, McDonalds stopped using EPS clamshells at its restaurants nationwide.[11]
    - EPS foam costs cities money. As an example, the pre-ordinance 2008 annual costs of disposable food service items to the city of Seattle for collection, recycling, disposal and litter cleanup was estimated at about $620,000.[12]

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[5] Available at http://scholarworks.sjsu.edu/cgi/viewcontent.cgi?article=1265&context=etd_projects

[6] Id. At 33.

[7] Id., at p. 7.

[8] Id., at pp. 27, 33.

[9] Id., at p. 35.

[10] Id., at 29.

[11] Id.

[12] Id., at p. 38-39.

Editorial Polystyrene is killing our coasts. California needs to turn off the trash tap on foam takeout containers

Consumers in San Francisco will no longer be able to purchase foam cups and other polystyrene products. (Jeff Chiu / Associated Press)

By **The Times Editorial Board**

JULY 15, 2016, 5:00 AM

San Francisco county supervisors recently adopted the nation's strictest ban on polystyrene foam, prohibiting its use in takeout containers and shipping materials and barring the sale of foam retail products. No more packing peanuts or cheap picnic coolers for sale in the City by the Bay.

The new law is entirely in step with San Francisco's uber-progressive and sometimes unusual policies, but it's extreme. By contrast, the other 90 or so California cities and counties that have adopted polystyrene bans

in the last decade have appropriately focused on the most troublesome form of the plastic foam: single-use takeout food and beverage containers. After cigarette butts and scrap pieces of hard plastic, soft polystyrene foam — known popularly, if incorrectly, as Styrofoam — is the third most-common source of trash washing up on local beaches, according to Heal the Bay. Not surprising, given that Americans discard 2.5 billion foam cups every year and rarely recycle their used polystyrene takeout containers.

But it's the stuff that doesn't wash up on the beach, and remains in the water, that causes the biggest environmental concern. Polystyrene foam doesn't biodegrade like organic material. Instead, it breaks down into small pellets that are hard to clean up — and are nicely bite-sized for fish and fowl. That's not just icky; it's potentially poisonous for marine creatures and the humans who eat them. Polystyrene absorbs toxins in the water, such as DDT, a carcinogenic pesticide still in use outside the United States, and PCBs, which are also suspected carcinogens.

Polystyrene pollution is a real problem that is getting worse, despite intense recycling and trash-reduction efforts. The Great Pacific Garbage Patch keeps growing, fed by a steady stream of disposable-plastic waste. One report by the World Economic Forum warns that if plastics continue to be dumped into the ocean at their current rate, there will be more plastic than fish in the oceans by 2050.

It's time for the state to turn off the trash tap. That effort has been underway at the local level for the last decade; Santa Monica, Hermosa Beach, Manhattan Beach and other coastal cities have passed laws prohibiting food service businesses from using to-go containers made of polystyrene foam. The Pasadena City Council on Tuesday voted to do the same, and Culver City, which sits along the storm drain-fed Ballona Creek, is considering a ban of its own. The city and county of Los Angeles and Los Angeles Unified School District have prohibited the use of polystyrene in their facilities and schools. And more cities and counties may be inspired by San Francisco's bold action to adopt their own version of a ban.

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In some ways, polystyrene foam is worse than single-use plastic bags.

San Francisco's rule may not be the best model, at least at the moment, because of its scope. Foam packing material is not as likely to be tossed in the street, and in some cases, there is no reasonable substitute. In addition, polystyrene is 98% air and so lightweight that replacing it with cardboard or other packing material could raise shipping weights. If more fuel is required to transport the same goods, that would increase greenhouse gas emissions. Simply swapping one environmental ill for another is no solution.

Regardless, the spread of local restrictions on polystyrene use is fast becoming a nightmare for businesses, such as food trucks or chain restaurants, that operate in more than one California city. And that's a good thing, because it may take a critical mass of cities adopting different versions of plastic foam bans to generate a comprehensive statewide ban. It wasn't until local governments created a messy patchwork of plastic-bag ordinances that the Legislature found the courage to take on the powerful plastic bag lobby and ban single-use plastic bags throughout California.

At the moment the top priority for environmentalists is getting voters to support a ballot measure to ratify the ban on single-use plastic bags. (The anti-trash measure that lawmakers adopted nearly two years ago was put on hold until a ballot challenge by plastic bag makers is voted on in November.) After that, they should prepare for the next big trash fight.

It won't be easy. The polystyrene lobby and business groups will fight hard to try to stop such a ban, as they did unsuccessfully in San Francisco. They will argue that the bigger problem is litter and that the real solution is doing a better job of recycling foam, or maybe even finding a way to turn plastic trash into energy. If the industry can get those things going soon, more power to them. For now, however, we need to stop the flow of polystyrene foam trash into the ocean.

In some ways, polystyrene foam is worse than single-use plastic bags. Both are recyclable, but about three times as many single-use plastic bags are diverted from the landfill in California than the approximately 1% of plastic foam that is recycled. Many cities do not accept polystyrene when collecting recyclables at the curb. (Los Angeles does, so long as it is clean.)

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For The Record

JUL. 15, 2016, 12:48 PM

An earlier version of this editorial gave an incorrect recycling rate for single-use plastic bags.

Styrofoam recycling, already scarce in the region, takes another hit

Terry Warner of Chicago Logistic Service opens a truck full of plastic foam to be recycled at Dart Container Corp. in North Aurora on Aug. 4, 2016. (Mike Mantucca / Chicago Tribune)

By **Nereida Moreno**
Chicago Tribune

AUGUST 22, 2016, 5:03 AM

After years of providing a free polystyrene recycling service for 10 northwest suburban locations, Ken Santowski recently announced he was shutting it down. He could no longer afford to store truckloads of foam before hauling them to faraway processing plants, he said.

One Wisconsin company began to charge him money to accept the material. Another plant in North Aurora took the foam for free, but had scheduling issues. Santowski, 56, announced in July that he couldn't make it work. He was waiting weeks before landing a drop-off appointment, which meant turning semitrailers from

his small business to storing facilities.

He hopes to get the program back up and running again, but in the meantime Algonquin and other nearby towns join the majority of communities in the region that have no official means to divert polystyrene from landfills.

The fact that polystyrene recycling for 10 communities was run by a volunteer is emblematic of how difficult it remains to operate a viable program.

Only 1.3 percent of all polystyrene discarded in 2013 was recycled, according to the Environmental Protection Agency, even though environmental groups and local governments voiced concerns about the material. The foam, which is nonbiodegradable, easily crumbles into small pieces, making it more likely to be transported through storm drains to waterways and marine environments, according to a January 2015 report by the Natural Resources Defense Council.

Polystyrene is rarely collected in curbside municipal recycling programs. Because of its lightness — foam is about 95 percent air by weight — large amounts need to be collected and compressed, or densified, before it can be recycled.

The city of Chicago does not accept the material, commonly known by its trademark name Styrofoam, in its curbside Blue Cart recycling program. According to the city's website, residents are encouraged to drop off their foam at the Dart Container Corp. facility in North Aurora, about 40 miles west of Chicago.

"Residents throw plastic bottles, glass, metal, cartons and paper together into one blue recycling cart. Styrofoam's weight and density, however, make it hard to separate at a sorting center and therefore is not accepted in our program," said Jennifer Martinez, spokeswoman for Chicago's Streets and Sanitation Department.

In Naperville, polystyrene foam is barred from the city's Recycling Drop-Off Center because it's difficult to sell and easily contaminated by other materials in recycling bins, which makes it harder to sort, said Beth Lang, facilities and general services manager.

"From a business perspective, there is no market for (recycled polystyrene foam). It's difficult to sell. The second reason, and more critical reason, is the fact that it has to remain in perfect condition for it to be repurposed," Lang said. "I'm seeing less Styrofoam being used. Hopefully, we're moving in a good direction."

Still, polystyrene is commonly used in restaurants, homes and schools around the country.

When he learned that polystyrene foam is nonbiodegradable, Santowski began collecting the material in small loads. In 2010, he started using resources from his private trucking business, Chicago Logistic Service, to expand the operation into a community service program with 10 public drop-off sites across McHenry County, including Algonquin, Barrington Hills and Lakewood.

"I thought, someone has to do something about this. So when I started my own company, we did what we could to keep it out of the landfills," he said.

"Some people are passionate about composting or saving the rainforest or saving the water. Personally, I picked something that's big and bulky and there's no weight to it."

Santowski said he has spent more than $10,000 annually on labor and transportation to haul truckloads of plastic foam to various recycling centers at no cost to local residents. This year, he said, he and his crew have diverted 25 semitrailers of the material out of local landfills — the equivalent of 100 county garbage trucks.

"My joke was, if somebody came down from China and had Styrofoam in their suitcase and wanted to recycle it with me, they were more than welcome to do it," he said.

But Santowski said he was forced to shut the free recycling program down in July. He said he couldn't afford to pay recycling companies to accept truckloads of unprocessed polystyrene.

Dart, a food-packaging manufacturer, is one of the few companies that accepts plastic foam for free but requires people with large loads to schedule an appointment. At one point, Santowski said he had three full

semitrailers waiting to be dumped at their North Aurora facility. The location had recently been backed up by a high volume of delivery requests, forcing them to stagger appointments, said Michael Westerfield, corporate director of Dart's recycling programs.

Santowski said he's had to wait several weeks to recycle the plastic foam and couldn't allow the material to keep piling up at his business. However, he remains optimistic and said he hopes to someday raise enough money to restart the program and build a model for other cities and communities to do the same.

"My goal was never to make money; my goal was to keep the program going. It would kill me to have to put it in the garbage. I'm working on trying to get the program started again and do it in a new and improved way," he said.

Algonquin residents would regularly stuff collection bins outside the Public Works facility with cups, plates and packaging material. Without Santowski's weekly — and sometimes even more frequent — collections, the community will have to go back to throwing its plastic foam products in the garbage, said Katie Parkhurst, senior planner at Algonquin Public Works Facility. The town's curbside recycling program doesn't accept plastic foam.

"Unfortunately, now everyone will have to dispose of it through the waste hauler — they'll have to pay for throwing it out. And Styrofoam is big and bulky so it takes up a lot of room in the garbage can or in your garbage bag," Parkhurst said. "Then it just sits in the landfill. We were really excited when we had an outlet to recycle the Styrofoam because not a lot of places are able to do that."

Parkhurst said the city is working with Santowski for an alternative way to deal with plastic foam.

"It's been a wonderful service," she said.

Highland Park launched a Styrofoam-recycling effort in 2011 after officials first considered a ban on plastic foam products, such as food carryout containers. More than 90 U.S. cities have banned plastic foam food packaging. Chicago considered a ban in 2011 that was officially rejected by the City Council in May 2015.

Merleanne Rampale, spokeswoman for the Solid Waste Agency of Lake County, said Highland Park originally partnered with Dart for a six-month pilot program to collect and recycle the material. The program continues and is open to all Lake County residents every Tuesday and the first Saturday of each month in Highland Park at 1180 Half Day Road.

"(Styrofoam) is a very affordable product that gets the job done. But there are a number of companies

looking for materials to do the same job," Rampale said. "We encourage people to recycle it when they can, or buy other products."

Westerfield, Dart's recycling director, said the company amassed nearly 258,700 pounds of plastic foam from drop-off locations in North Aurora, Winnetka and Highland Park between 2010 and 2015 — an average of more than 43,000 pounds annually. He said no data is available for the company's new drop-off location in Chicago, which opened in May.

"It just shows you that there's a desire to do it. We just need infrastructure in place for people to accept it and get it on curbside (programs)," he said. "We've got a lot of work to do. Most people have no idea it's recycled. It's a matter of education. It's a matter of figuring out the most efficient way to do it."

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[Environment Code - Food Service and Packaging Waste Reduction]

Ordinance amending the Environment Code to prohibit the sale of food service ware and other specified products including packing materials that are made from polystyrene foam or that are non-recyclable and non-compostable; setting ~~an~~ operative dates ~~date of January 1, 2017~~; and affirming the Planning Department's determination under the California Environmental Quality Act.

NOTE: **Unchanged Code text and uncodified text** are in plain Arial font.
Additions to Codes are in *single-underline italics Times New Roman font*.
Deletions to Codes are in *~~strikethrough italics Times New Roman font~~*.
Board amendment additions are in double-underlined Arial font.
Board amendment deletions are in ~~strikethrough Arial font~~.
Asterisks (* * * *) indicate the omission of unchanged Code subsections or parts of tables.

Be it ordained by the People of the City and County of San Francisco:

Section 1. The Planning Department has determined that the actions contemplated in this ordinance comply with the California Environmental Quality Act (California Public Resources Code Sections 21000 et seq.). Said determination is on file with the Clerk of the Board of Supervisors in File No. 160383 and is incorporated herein by reference. The Board affirms this determination.

Section 2. Findings.

(a) The City and County of San Francisco has a duty to protect the natural environment, the economy, and the health of its citizens.

(b) Polystyrene foam, commonly but often incorrectly referred to as "styrofoam" ~~aka "Styrofoam"~~, is an environmental pollutant that is commonly used for packaging and as food service ware in the City and County of San Francisco.

(c) Due to the physical properties of polystyrene foam, the U.S. Environmental Protection Agency (EPA) states "that such materials can have serious impacts upon human health, wildlife, and aquatic environment, and the economy."

(d) Polystyrene foam packaging and food service ware cannot be recycled through San Francisco's recycling (blue bin) collection program and is otherwise difficult or impossible to recycle, and is not compostable. Compostable or recyclable disposable packaging and food service ware are an affordable, safe, more ecologically sound alternative.

(e) Disposable food service ware and packaging foam constitute a significant source of litter on San Francisco's street, parks, and public places, and the costs of managing this litter is substantial.

(f) A new report by the Ellen MacArthur Foundation, World Economic Forum, and McKinsey & Company finds an increasing rate of plastics entering the oceans and predicts that, without significant action to reduce that flow, by 2050 there will be by weight more plastic in the oceans of the world than fish. According to the report, most of these plastics come from packaging, including food and beverage containers, and much of these plastics are made from polystyrene foam.

(g) ~~(f)~~ The Bay Area Stormwater Management Agencies Association and Caltrans found that between 8 to 15% of plastics in San Francisco storm drains are polystyrene foam. The San Francisco Estuary Institute found that 8% of the microplastics entering San Francisco Bay from wastewater treatment facilities are polystyrene foam. And a recent study concluded that 71% of the microplastics found in the Los Angeles and San Gabriel Rivers were polystyrene foam pieces.

(h) ~~(g)~~ Polystyrene foam is a notorious pollutant that breaks down into smaller, non-biodegradable pieces that are often mistaken for fish eggs by seabirds and other marine life.

(i) ~~Unlike harder plastics, polystyrene~~ Polystyrene contains a chemical used in the production process called "styrene" that ~~is metabolized after ingestion and threatens the entire food chain, including humans who consume contaminated marine wildlife.~~

~~(h) Styrene~~ has been linked to cancer as well as reproductive and developmental disorders by the National Research Council, and that ~~styrene~~ leaches from polystyrene into food and drink, according to the Styrene Information Research Center, whose membership consists of approximately 95% of the North American styrene industry. ~~U.S. Food and Drug Administration.~~

(j) Styrene is also a chemical known by the State of California to cause cancer, and is included as a listed chemical under the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65) by the California Office of Environmental Health Hazard Assessment.

(k) ~~(i)~~ The general public typically is not warned or aware of any potential hazard from styrene, particularly in the immigrant and non-English speaking community.

(l) ~~(j)~~ Due to these concerns, more than 100 U.S. cities have enacted ordinances banning or restricting the sale and/or use of polystyrene foam service ware and/or packaging materials, and many local businesses and a number of national corporations have successfully replaced polystyrene foam and other non-biodegradable food service ware and packaging materials with alternative, cost-competitive products.

(m) ~~(k)~~ San Francisco food service providers are already prohibited, under Environment Code Section 1604, from using polystyrene food containers, and this ordinance extends such prohibition to the sale of such products.

(n) ~~(l)~~ The ordinance also prohibits packaging providers from selling polystyrene foam packaging materials, including polystyrene foam "packing peanuts."

(o) ~~(m)~~ Restricting the use of polystyrene foam food service ware and requiring it to be replaced with less-hazardous, compostable, or readily recyclable products, and barring the sale of polystyrene foam food service ware, packaging products, and other polystyrene products will further protect the public health and safety of San Francisco's residents, as well as its natural environment, waterways and wildlife. Taking these steps will also advance the City's goal of Zero Waste by 2020 and fulfill Article 10 of the Environmental Accords, in which the City committed with other cities around the globe to eliminate or restrict the use of one chemical or environmental hazard each year.

Section 3. The Environment Code is hereby amended by revising Chapter 16, Sections 1601 through 1610, to read as follows:

CHAPTER 16: FOOD SERVICE *AND PACKAGING*

WASTE REDUCTION ORDINANCE

Sec. 1601.	Title.
Sec. 1602.	Definitions.
Sec. 1603.	*Sale or Distribution of Non-Compliant Food Service Ware Prohibited.*
Sec. *1604* ~~*1603*~~.	*Use of Non-Compliant* ~~*Prohibited Disposable*~~ Food Service Ware *Prohibited*.
~~*Sec. 1604.*~~	~~*Required Biodegradable/Compostable or Recyclable Disposable Food Service Ware.*~~
Sec. 1605.	*Other Polystyrene Foam Products.*
Sec. *1606* ~~*1605*~~.	Implementation~~; *City Contracts and Leases*~~.
Sec. *1607* ~~*1606*~~.	Enforcement and Penalties.
~~*Sec. 1607.*~~	~~*Report to the Board of Supervisors.*~~

~~*Sec. 1608.*~~ ~~*Operative Date.*~~

Sec. *1608* ~~*1609*~~. Severability.

Sec. *1609* ~~*1610*~~. No Conflict With Federal or State Law.

Sec. *1610* ~~*1611*~~. Undertaking for the General Welfare.

SEC. 1601. TITLE.

This *Chapter 16* ~~*Ordinance*~~ shall be known as the Food Service *and Packaging* Waste Reduction Ordinance.

SEC. 1602. DEFINITIONS.

For purposes of this Chapter 16, the following definitions shall apply:

~~*(a) "Affordable" means purchasable for not more than 15 percent more than the purchase cost of the non-Biodegradable non-Compostable or non-recyclable alternative(s).*~~

~~*(b)*~~ "ASTM Standard *Specification*" means ~~*meeting the standards of the*~~ *Standard Specification for Compostable Plastics D6400 or Standard Specification for Biodegradable Plastics D6868, as adopted or subsequently amended by the* American Society for Testing and Materials (ASTM) ~~*International Standards D6400 or D6868 for biodegradable and compostable plastics, as those standards may be amended*~~.

"City" means the City and County of San Francisco.

~~*(c) "Compostable" means all the materials in the product or package will break down into, or otherwise become part of, usable compost (e.g., soil-conditioning material, mulch) in a safe and timely manner in San Francisco's Composting Program. Compostable Disposable Food Service Ware must meet ASTM Standards for compostability and any bio-plastic or plastic like product must be clearly labeled, preferably with a color symbol, to allow proper identification such that San Francisco's compost collector and processor can easily distinguish the ASTM Standard Compostable plastic from*~~

~~*non-ASTM Standard Compostable plastic. For the purposes of this ordinance the term biodegradable shall have the same meaning as compostable. This ordinance uses the terms biodegradable and compostable interchangeably and in all cases whether the terms are used separately, in the disjunctive or in the conjunctive they shall always be interpreted and applied consistent with this definition of the term "compostable".*~~

~~*(d) "City Administrator" means the City Administrator appointed under Section 3.104 of the Charter or his or her designee.*~~

~~*(e)*~~ "City contractors and lessees" means any person or entity that has a contract with the City for public works or improvements to be performed, for a franchise, concession, or lease of property, for grant monies or goods and services or supplies to be purchased at the expense of the City ~~*and County*~~, or to be paid out of monies deposited in the Treasury or out of trust monies under the control *of* or collected by the City ~~*and County*~~.

~~*(f)*~~ "City Facility" means any building, structure, or vehicle owned or operated by the City ~~*of San Francisco*~~.

~~*(g)*~~ "City Facility Food Provider" means an entity that provides, but does not sell, Prepared Food in City Facilities, including without limitation, San Francisco General Hospital, Laguna Honda Hospital, *the* San Francisco County Jail, and the San Bruno Jail Complex.

"Compostable" means material that can be broken down into, or otherwise become part of, usable compost (e.g., soil-conditioning material) in a safe and timely manner and as accepted in San Francisco's compostables collection program. "Compostable" also includes a plastic-like material if the material meets the ASTM Standard Specification for compostability and the product is labeled in accordance with California Public Resources Code Section 42357 et seq. and Department of the Environment regulations for easy identification of Compostable products meeting the ASTM Standard Specification for compostable plastics.

"Department" means the Department of the Environment.

"Director" means the Director of the Department of the Environment, or his or her designee.

~~*(h) "Disposable Food Service Ware" means all containers, bowls, plates, trays, carton, cups, lids, straws, forks, spoons, knives, napkins, and other items that are designed for one-time use for Prepared Foods, including without limitation, service ware for takeout foods and/or leftovers from partially consumed meals prepared by Food Vendors. The term "Disposable Food Service Ware" does not include items composed entirely of aluminum, or polystyrene foam coolers and ice chests that are intended for reuse.*~~

"Distribute" means the sale, offer for sale, or other transfer of possession of an item for compensation, either as a separate transaction or as part of the sale, offer for sale, or other transfer of possession of another item for compensation.

"Egg Carton" means a carton for raw eggs sold to consumers from a refrigerator case or similar retail appliance.

"Food Service Ware" means all containers, bowls, plates, trays, cups, lids, straws, forks, spoons, knives, napkins, and other like items that are designed for one-time use for Prepared Foods, including without limitation, service ware for takeout foods and/or leftovers from partially consumed meals prepared by Food Vendors. The term "Food Service Ware" does not include items composed entirely of aluminum, or polystyrene foam coolers and ice chests.

~~*(i)*~~ "Food Vendor" means any Restaurant or Retail Food Vendor located or operating within the City ~~*and County of San Francisco*~~.

"Meat and Fish Tray" means a tray for raw meat, fish, or poultry sold to consumers from a refrigerator case or similar retail appliance.

"Packing Material" means material used to hold, cushion, or protect items packed in a container for shipping, transport, or storage.

~~*(j)*~~ "Person" means an individual, trust, firm, joint stock company, corporation including a government corporation, partnership, or association.

~~(k)~~ "Polystyrene Foam" means blown polystyrene and expanded and extruded foams ~~(sometimes called Styrofoam™)~~ which are thermoplastic petrochemical materials utilizing a styrene monomer and processed by any number of techniques including, but not limited to, fusion of polymer spheres (expandable bead polystyrene), injection molding, foam molding, and extrusion-blown molding (extruded foam polystyrene). Polystyrene foam is generally used to make cups, bowls, plates, trays, clamshell containers, meat trays, and egg cartons.

~~(l)~~ "Prepared Food" means food or beverages, which are serviced, packaged, cooked, chopped, sliced, mixed, brewed, frozen, squeezed, or otherwise prepared (collectively "prepared") ~~within the City~~ ~~*and County of San Francisco*~~ for individual customers or consumers. ~~*For the purpose of this Chapter,*~~ Prepared Food ~~includes take-out food, but~~ does not include raw eggs or raw, butchered meats, fish, and/or poultry sold from a butcher case, a refrigerator case, or similar retail appliance.

~~(m)~~ "Recyclable" means material that can be sorted, cleansed, and reconstituted using ~~*San Francisco's*~~ *the City's* available recycling collection programs for the purpose of using the altered form in the manufacture of a new product. Recycling does not include burning, incinerating, converting, or otherwise thermally destroying solid waste.

~~(n)~~ "Restaurant" means any establishment located within the City ~~*and County of San Francisco*~~ that sells Prepared Food for consumption on, near, or off its premises. ~~*For purposes of this Chapter, The*~~ term includes a Restaurant operating from a temporary facility, cart, vehicle, or mobile unit.

~~(o)~~ "Retail Food Vendor" means any store, shop, sales outlet, or other establishment, including a grocery store or a delicatessen, other than a Restaurant, located within the City ~~*and County of San Francisco*~~ that sells Prepared Food.

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SEC. 1603. SALE OR DISTRIBUTION OF NON-COMPLIANT FOOD SERVICE WARE PROHIBITED.

(a) No person may sell, offer for sale, or otherwise Distribute within the City (1) any Food Service Ware that is not either Compostable or Recyclable using the City's then-available collection programs, or (2) any Food Service Ware made, in whole or in part, from Polystyrene Foam.

(b) The Director shall, after a noticed public hearing, adopt a list of suitable alternative Compostable or Recyclable Food Service Ware products. "Suitable alternative Compostable or Recyclable Food Service Ware products" means Food Service Ware products that the Director determines serve the same intended purpose as non-compliant products, meet the standards for what is Compostable and/or Recyclable set under this Chapter 16, and are reasonably affordable. The Director shall regularly update the list ~~by regulation~~.

If a product is included on the Director's list, it will be deemed to comply with this Section 1603. If a product is not included on the Director's list, the person using the product as Food Service Ware will have the burden of establishing to the Director's satisfaction that the product complies with this Section.

SEC. *1604* ~~***1603***~~**. *PROHIBITED USE OF NON-COMPLIANT*** ~~***DISPOSABLE***~~ **FOOD SERVICE WARE *PROHIBITED*.**

(a) Food Vendors may not sell, *offer for sale, or otherwise Distribute* Prepared Food *(1)* in ~~*Disposable*~~ Food Service Ware *made, in whole or in part, from* ~~*that contains*~~ Polystyrene Foam, *or (2) in Food Service Ware that is not Compostable or Recyclable*.

(b) City Facility Food Providers may not provide Prepared Food *to City Facilities (1)* in ~~*Disposable*~~ Food Service Ware *made, in whole or in part, from* ~~*that contains*~~ Polystyrene Foam, *or (2) in Food Service Ware that is not Compostable or Recyclable*.

(c) City Departments may not purchase, acquire, or use ~~*Disposable*~~ Food Service Ware *for Prepared Food (1) where the Food Service Ware is made, in whole or in part, from* ~~*that contains*~~ Polystyrene Foam, *or (2) where the Food Service Ware is not Compostable or Recyclable*.

(d) City contractors and lessees may not use ~~*Disposable*~~ Food Service Ware *for Prepared Food* ~~*that contains Polystyrene Foam*~~ in City Facilities and while performing under a City contract or lease *(1) where the Food Service Ware is made, in whole or in part, from Polystyrene Foam, or (2) where the Food Service Ware is not Compostable or Recyclable*.

(e) The Director shall, after a noticed public hearing, adopt a list of suitable alternative Compostable or Recyclable Food Service Ware products. "Suitable alternative Compostable or Recyclable Food Service Ware products" means Food Service Ware products that the Director determines serve the same intended purpose as non-compliant products, meet the standards for what is Compostable and/or Recyclable set under this Chapter 16, and are reasonably affordable. The Director shall regularly update the list ~~by regulation~~.

If a product is included on the Director's list, it will be deemed to comply with this Section 1604. If a product is not included on the Director's list, the person using the product as Food Service Ware will have the burden of establishing to the Director's satisfaction that the product complies with this Section.

(f) It shall not be a violation of this Section 1604 to sell, provide, or purchase Prepared Food packaged in Food Service Ware otherwise prohibited by subsections (a) through (c), or to use Food Service Ware otherwise prohibited by subsection (d), if the Prepared Food is packaged outside the City and is sold or otherwise provided to the consumer in the same Food Service Ware in which it originally was packaged. Businesses packaging Prepared Food outside the City are encouraged to use Food Service Ware that is Compostable or Recyclable and is not made, in whole or in part, from Polystyrene Foam.

~~***SEC. 1604. REQUIRED BIODEGRADABLE/COMPOSTABLE OR RECYCLABLE DISPOSABLE FOOD SERVICE WARE.***~~

~~*(a) All Food Vendors using any Disposable Food Service Ware shall use a suitable Affordable alternative Biodegradable/Compostable or Recyclable product, unless there is no suitable Affordable Biodegradable/Compostable or Recyclable product available as determined by the City Administrator in accordance with this subsection. Not later than 30 days before the operative date of this Chapter, and after a public hearing, the City Administrator shall adopt a list of available suitable Affordable Biodegradable/Compostable or Recyclable alternatives for each product type. The City Administrator shall regularly update the list.*~~

~~*(b) All City Facility Food Providers and City departments using any Disposable Food Service Ware shall use Biodegradable/Compostable or Recyclable Disposable Food Service Ware unless there is no Affordable Biodegradable or Compostable product available as determined by the City Administrator in accordance with Subsection 1604(a).*~~

~~*(c) City contractors and lessees using any Disposable Food Service Ware shall use suitable Biodegradable/Compostable or Recyclable Disposable Food Service Ware in City Facilities and while performing under a City contract or lease unless there is no suitable Affordable Biodegradable/Compostable or recyclable product available as determined by the City Administrator in accordance with Subsection 1604(a).*~~

SEC. 1605. OTHER POLYSTYRENE FOAM PRODUCTS.

(a) No person may sell, offer for sale, or otherwise Distribute for compensation within the City:

(1) Packing Materials, including shipping boxes and packing peanuts;

(2) coolers, ice chests, or similar containers;

(3) pool or beach toys; or

(4) dock floats, mooring buoys, or anchor or navigation markers;

made, in whole or in part, from Polystyrene Foam that is not wholly encapsulated or encased within a more durable material.

(b) No person may sell, offer for sale, or otherwise Distribute for compensation within the City Meat and Fish Trays and Egg Cartons made, in whole or in part, from Polystyrene Foam, or that are not Compostable and/or Recyclable, either as separate items or as part of the sale of raw meat, fish, poultry, or eggs sold to consumers from a refrigerator case or similar retail appliance.

(c) No person may sell, offer for sale, or otherwise Distribute within the City any Packing Materials made, in whole or in part, from Polystyrene Foam, as prohibited in subsection (a), or that are not Compostable or Recyclable. For purposes of this Section 1605, Distribution of Packing Materials shall include using such materials to hold, cushion, or protect items to be packed in a container for shipping, transport, or storage, for compensation, where the packing takes place within the City.

(d) For purposes of this Section 1605, Distribution of Packing Material shall not include:

(1) Receiving shipments within the City that include Polystyrene Foam, or some other non-Compostable and non-Recyclable product, used as Packing Material;

(2) Re-using Packing Materials for shipping, transport, or storage within the same distribution system, where the Packing Materials are not sent to a consumer or end user;

(3) Donating used Packing Materials to another person, where the donor receives nothing of value for the donated Packing Materials; or.

(4) Using Packing Materials donated under subsection (d)(3) for shipping, transport, or storage, where the person using the Packing Materials receives nothing of value for the donated Packing Materials.

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SEC. *1606* ~~*1605*~~. IMPLEMENTATION~~; *CITY CONTRACTS AND LEASES*~~.

(a) The Director shall create, maintain, and regularly update the product lists referenced in Sections 1603(b) and 1604(e).

(b) ~~*(a)*~~ The *Director* ~~*City Administrator*~~ is authorized to promulgate regulations, guidelines and forms and to take any and all other actions reasonable and necessary to implement and enforce this Chapter.

(c) The Director may waive the provisions of Sections 1603(a), 1604(a), and 1605(a), (b), and (c) due to a feasibility-based hardship. The person seeking the waiver must demonstrate to the Director's satisfaction that no reasonably feasible alternative exists to a specific non-compliant product.

(d) The Director may waive the provisions of Sections 1603(a), 1604(a), and 1605(a), (b), and (c) due to a financial hardship. The person seeking the exemption must demonstrate to the Director's satisfaction both (1) that the applicant has a gross income of less than $500,000 on the applicant's annual income tax filing for the most recent tax year, and (2) that with respect to each specific non-compliant product, there is no suitable and reasonably affordable alternative product available.

(e) A person seeking a waiver under subsections (c) or (d) of this Section 1606 must submit a written application on a form approved by the Director. The Director may require the applicant to submit additional information or documentation to make a determination regarding the waiver requested. The Director shall review requests for waivers on a case-by-case basis, and may grant the waiver in whole or in part, with or without conditions, for a period of up to 36 months. An applicant for renewal of a waiver must apply for a new waiver period no later than 60 days prior to the expiration of the then-current period to preserve a continuous waiver status. The Director shall review each application anew and base his or her determination on the most current information available. The Director's determination shall be final and shall not be subject to appeal.

(f) ~~(b)~~ *A City officer, employee, or department* ~~*Any person*~~ may seek a waiver from the requirements of *subsections (b), (c), or (d) of* Section 1604 ~~*of this Chapter*~~ by filing a request on a form *approved* ~~*specified*~~ by the *Director* ~~*City Administrator*~~. The *Director* ~~*City Administrator,*~~ ~~*consistent with this Chapter,*~~ may *grant a waiver in whole or in part, with or without conditions,* ~~*waive any specific requirement of this Chapter*~~ for a period of up to *36 months* ~~*one year*~~ if the *officer, employee, or department* ~~*person*~~ seeking the waiver has demonstrated *to the Director's satisfaction* that strict application of the specific requirement would create an undue hardship or practical difficulty not generally applicable to other persons in similar circumstances*, or the waiver is otherwise justified*. ~~*The City Administrator's decision to grant or deny a waiver shall be in writing and shall be final.*~~

(g) In addition to individual waivers provided for under subsections (c), (d), and (f) of this Section 1606, the Director may waive the provisions of Section 1605 with respect to particular categories of uses of Packing Materials or of Egg Cartons or Meat and Fish Trays made, in whole or in part, from Polystyrene Foam, or other non-Compostable or non-Recyclable material. The Director may grant a waiver under this subsection (g) in whole or in part, with or without conditions, for a period of up to 36 months, upon finding that no suitable and reasonably affordable alternative to use of the non-compliant product is feasible. The Director's determination shall be final and shall not be subject to appeal.

~~*(c) All City contracts and leases, including without limitation, contracts with City Facility Food Providers, shall contain the following minimum language: "Contractor agrees to comply fully with and be bound by all of the provisions of the Food Service Waste Reduction Ordinance, as set forth in San Francisco Environment Code Chapter 16, including the remedies provided, and implementing guidelines and rules. The provisions of Chapter 16 are incorporated herein by reference and made a part of this agreement as though fully set forth. This provision is a material term of this agreement. By entering into this agreement, contractor agrees that if it breaches this provision, City will suffer actual*~~

~~*damages that will be impractical or extremely difficult to determine; further, Contractor agrees that the sum of one hundred dollars ($100.00) liquidated damages for the first breach, two hundred dollars ($200.00) liquidated damages for the second breach in the same year, and five hundred dollars ($500.00) liquidated damages for subsequent breaches in the same year is a reasonable estimate of the damage that City will incur based on the violation, established in light of the circumstances existing at the time this agreement was made. Such amounts shall not be considered a penalty, but rather agreed monetary damages sustained by City because of contractor's failure to comply with this provision."*~~

SEC. *1607* ~~*1606*~~. ENFORCEMENT AND PENALTIES.

(a) The *Director* ~~*City Administrator*~~ shall issue a written warning to any person he or she determines is violating *Sections 1603(a), 1604(a), (b), or (d), or 1605(a), (b), or (c)* ~~*Sections 1603(a) or 1604(a)*~~ of this Chapter. If after issuing a written warning of violation from the *Director* ~~*City Administrator*~~, the *Director* ~~*City Administrator*~~ finds that person continues to violate the provisions of *Sections 1603(a), 1604(a), (b), or (d), or 1605(a), (b), or (c)* ~~*Sections 1603(a) or 1604(a)*~~, the *Director* ~~*City Administrator*~~ may apply for or impose the various sanctions provided in this Section.

(b) Any person who violates the provisions of *Sections 1603(a), 1604(a), (b), or (d), or 1605(a), (b), or (c)* ~~*Sections 1603(a) or 1604(a)*~~ of this Chapter shall be guilty of an infraction. If charged as an infraction, upon conviction thereof, said person shall be punished for the first offense by a fine of not more than $100.00 for a first violation; not more than $200.00 for a second violation in the same year and not more than *$500.00* ~~*$250.00*~~ for each subsequent violation in the same *12-month period* ~~*year*~~.

(c) The *Director* ~~*City Administrator*~~ may issue an administrative *fine* ~~*civil liability citation*~~ to *any* ~~*such*~~ person *violating Sections 1603(a), 1604(a), (b), or (d), or 1605(a), (b), or (c) in accordance with Administrative Code Chapter 100, which is hereby incorporated by reference.* ~~*in an*~~

~~*amount not exceeding $100.00 for the first violation, an amount not exceeding $200.00 for the second violation in the same year, and an amount not exceeding $500.00 for each subsequent violation in the same year. In determining administrative civil penalties, the City Administrator shall consider the extent of harm caused by the violation, the nature and persistence of the violation, the length of time over which the violation occurs, the frequency of past violations, any action taken to mitigate the violation, and the financial burden to the violator.*~~

~~*Any person to whom the City Administrator issues a written warning of violation or an administrative civil liability citation may request an administrative hearing to appeal such warning or determination of liability. Not later than 30 days before the operative date of this Chapter, and after a public hearing, the City Administrator shall promulgate rules and procedures for requesting and conducting an administrative hearing under this Chapter. In any administrative hearing under this Article, all parties involved shall have the right to offer testimonial, documentary, and tangible evidence bearing on the issues, to see and copy all documents and other information the City relies on in the proceeding, and to confront and cross-examine any witnesses against them. A decision by the hearing officer shall be final. Any person assessed a penalty under this subsection may contest such decision to the Superior Court within 20 days after service of the City's decision.*~~

(d) The City Attorney may seek legal, injunctive, or other equitable relief to enforce this Chapter, including without limitation, civil penalties in an amount not exceeding $100.00 for the first violation, $200.00 for the second violation, and *$500.00* ~~*$250.00*~~ for each subsequent violation in any given *12-month period* ~~*year*~~.

(e) The City may not recover both administrative and civil penalties pursuant to *subsections* ~~*Subsections*~~ (c) and (d) ~~*of this Section*~~ for the same violation. Penalties collected under *subsections* ~~*Subsections*~~ (c) and (d) ~~*of this Section*~~, which may include recovery of enforcement costs, shall be used to fund implementation and enforcement of this Chapter.

~~***SEC. 1607. REPORT TO THE BOARD OF SUPERVISORS.***~~

~~*No later than June 1, 2008, the Director of the Department of the Environment, in consultation with the City Administrator and with input from members of the public, shall submit to the Board of Supervisors a report recommending changes, if any, to this Chapter, including whether the ban imposed by this Chapter should be extended to other products, as supported by the report. If the Director recommends banning additional products, the report must include an estimate of the costs and benefits of compliance with a ban on additional products, including the increased costs to the City as well as to the City's food service industry.*~~

~~***SEC. 1608. OPERATIVE DATE.***~~

~~*This ordinance shall become operative on June 1, 2007.*~~

SEC. *1608* ~~*1609*~~. SEVERABILITY.

If any section, subsection, sentence, clause, or phrase of this Chapter *16* is for any reason held to be invalid or unconstitutional by a decision of any court of competent jurisdiction, such decision shall not affect the validity of the remaining portions of the Chapter. The Board of Supervisors hereby declares that it would have passed this Chapter and each and every section, subsection, sentence, clause, or phrase not declared invalid or unconstitutional without regard to whether any portion of this Chapter would be subsequently declared invalid or unconstitutional.

SEC. *1609* ~~*1610*~~. NO CONFLICT WITH FEDERAL OR STATE LAW.

This Chapter 16 is intended to be a proper exercise of the City's police power and role as a market participant, to operate only upon its own officers, agents, employees, and facilities, and other persons acting within the City's boundaries, and not to regulate inter-city or interstate commerce.

Nothing in this *Chapter* ~~*Ordinance*~~ shall be interpreted or applied so as to create any requirement, power or duty in conflict with any federal or state law.

SEC. *1610* ~~*1611*~~. UNDERTAKING FOR THE GENERAL WELFARE.

In undertaking the implementation of this Chapter *16*, the City is assuming an undertaking only to promote the general welfare. It is not assuming, nor is it imposing on its officer and employees, an obligation for breach of which it is liable in money damages to any person who claims that such breach proximately caused injury.

Section 4. Effective Date; Operative Date. This ordinance shall become effective 30 days after enactment. Enactment occurs when the Mayor signs the ordinance, the Mayor returns the ordinance unsigned or does not sign the ordinance within ten days of receiving it, or the Board of Supervisors overrides the Mayor's veto of the ordinance. This ordinance shall become operative on January 1, 2017; provided, however, that the application of this ordinance to Meat and Fish Trays shall become operative on July 1, 2017.

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Section 5. Scope of Ordinance. In enacting this Chapter 16, the Board of Supervisors intends to amend only those words, phrases, paragraphs, subsections, sections, articles, numbers, punctuation marks, charts, diagrams, or any other constituent parts of the Municipal Code that are explicitly shown in this ordinance as additions, deletions, Board amendment additions, and Board amendment deletions in accordance with the "Note" that appears under the official title of the ordinance.

APPROVED AS TO FORM:
DENNIS J. HERRERA, City Attorney

By: _____
THOMAS J. OWEN
Deputy City Attorney

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City Hall
1 Dr. Carlton B. Goodlett Place
San Francisco, CA 94102-4689

File Number: 160383 **Date Passed:** July 19, 2016

Ordinance amending the Environment Code to prohibit the sale of food service ware and other specified products including packing materials that are made from polystyrene foam or that are non-recyclable and non-compostable; setting operative dates; and affirming the Planning Department's determination under the California Environmental Quality Act.

June 16, 2016 Government Audit and Oversight Committee - AMENDED, AN AMENDMENT OF THE WHOLE BEARING NEW TITLE

June 16, 2016 Government Audit and Oversight Committee - RECOMMENDED AS AMENDED

June 28, 2016 Board of Supervisors - PASSED, ON FIRST READING

Ayes: 11 - Avalos, Breed, Campos, Cohen, Farrell, Kim, Mar, Peskin, Tang, Wiener and Yee

July 12, 2016 Board of Supervisors - AMENDED, AN AMENDMENT OF THE WHOLE BEARING SAME TITLE

Ayes: 10 - Avalos, Breed, Campos, Cohen, Farrell, Kim, Peskin, Tang, Wiener and Yee
Absent: 1 - Mar

July 12, 2016 Board of Supervisors - PASSED ON FIRST READING AS AMENDED

Ayes: 10 - Avalos, Breed, Campos, Cohen, Farrell, Kim, Peskin, Tang, Wiener and Yee
Absent: 1 - Mar

July 19, 2016 Board of Supervisors - FINALLY PASSED

Ayes: 11 - Avalos, Breed, Campos, Cohen, Farrell, Kim, Mar, Peskin, Tang, Wiener and Yee

File No. 160383

I hereby certify that the foregoing Ordinance was FINALLY PASSED on 7/19/2016 by the Board of Supervisors of the City and County of San Francisco.

Angela Calvillo
Clerk of the Board

Mayor

7/29/2016
Date Approved

Sec. 46-92. - Litter; definitions; prohibitions on litter; penalties for litter and commercial handbill violations; commercial handbill regulations, fines, and rebuttable presumptions; seizure and removal of litter by the city; enforcement; appeals; liens.

(a) *Definitions.* The following words, terms and phrases, when used in this article, shall have the meanings ascribed to them in this section, except where the context clearly indicates a different meaning:

(1) *Benefactor* means the owner of the business advertised in the commercial handbill whose agent, employee, contractor, promoter, or other representative did or caused the throwing, discarding, placing or depositing.

(2) *Business* means any commercial or industrial activity, entity, or event in or for which any goods or services are made, sold or offered for sale or other consideration, pecuniary or otherwise.

(3) *Handbill* means any handbill, flyer, paper, document, dodger, circular, folder, booklet, letter, card, pamphlet, sheet, poster, sticker, banner, notice or other written, printed or painted matter or object that conveys any information, except that "handbill" shall not include a newspaper or its contents.

(4) *Commercial handbill* means any handbill that conveys any information about any good or service provided by a business.

(5) *Litter* means any paper, handbill, commercial handbill, garbage, bottle caps, chewing gum, tobacco products, including, but not limited to, used and unused cigarettes, cigars, pipe or chewing tobacco, polystyrene or plastic products, or other waste, including, but not limited to, tree, plant, and grass cuttings, leaves, or other yard maintenance debris, that has been placed or deposited on a public sidewalk, street, road, avenue, beach, swale, median, building, fence, wall, boardwalk, beachwalk, baywalk, cutwalk, park, or in a gutter, drain, or sewer, or on any other public property, right-of-way or place, or on any object located on public property, or on the kneewall, window ledge or sill of any public or private building, or on a motor vehicle, or on any other type of private real or personal property. Handbills and commercial handbills attached to a trash receptacle, but not within the trash receptacle in the usual manner, shall also be considered litter.

(6) *One day* means a 24-hour period from noon to noon.

(7) *Person, benefactor,* or *owner* include, within their respective meanings, either an individual or an entity.

(8)

Right-of-way means and includes, but is not limited to, any state, county, or city-owned public street, sidewalk, street corner, curb, bicycle path, or pedestrian walkway.

(9) *Polystyrene* means a thermoplastic polymer comprised of at least 80 percent styrene or para-methylstyrene by weight.

(10) *Expanded polystyrene* means blown polystyrene and expanded and extruded foams that are thermoplastic petrochemical materials utilizing a styrene monomer and processed by any number of techniques including, but not limited to, fusion of polymer spheres (expandable bead foam), injection molding, foam molding, and extrusion-blown molding (extruded foam polystyrene).

(b) *Litter prohibited.* It shall be unlawful for any person or benefactor to throw, discard, place or deposit, or cause to be thrown, discarded, placed, or deposited, litter in any manner or amount whatsoever in or on any public highway, sidewalk, road, street, alley, thoroughfare, beach, park, baywalk, beachwalk, cutwalk, sidewalk cafe areas, or any other public place, except in containers or areas lawfully provided therefor. It shall be unlawful for any person to throw, discard, place or deposit any garbage, cans, bottles or containers in or on any freshwater lakes, rivers, streams, canals, or tidal or coastal waters within the city. In addition, it shall be unlawful for any person to throw, discard, place or deposit litter in any manner or amount whatsoever on any private real or personal property, including, but not limited to, sidewalk cafe furniture and fixtures, unless prior consent of the owner has been given and unless such litter will not cause a public nuisance or be in violation of any other state or local laws, rules or regulations.

(c) *Prohibitions on beaches, marinas, piers, docks, boat ramps, and in parks.* It shall be unlawful for any person to carry onto any beach within the city a glass or metal bottle or other glass or metal container. In addition, it shall be unlawful for any person to carry any expanded polystyrene product onto any beach or park within the city, or onto any city marina, pier, dock, or boat ramp, or for any business to provide plastic straws with the service or delivery of any beverage to patrons on any beach within the city.

(d) *Prohibitions on causing litter in sewers and on public and private property.* It shall be unlawful for any person to use leaf blowers, or any other means, to sweep, cast or throw, or cause to be cast or thrown, or discarded into any of the gutters, drains, sewers, or public rights-of-way within the city, or upon any adjacent public or private real or personal property, any garbage, litter, paper, handbill, trash, tree, plant, or grass cuttings, leaves, yard maintenance debris, or other objects or substances.

(e)

Garbage container requirements for restaurants. All restaurants with take-out service shall have up to four garbage containers, as need requires, based on the determination of the city manager or his designee. The containers shall be located in front of and within 50 feet in each direction of the premises at locations approved by the city manager or his designee. These containers shall be kept in clean and sanitary condition at all times and shall be emptied daily or more frequently if necessary to prevent overflowing. The garbage containers required by this section are in addition to those required by chapter 90 of this Code.

(f) *Penalties for violations.* The following civil fines shall be imposed for violations of this section, except as provided in subsection (h) below:

(1) For violations of subsection (c):

a. First offense within a 12-month period: $100.00 civil fine.

b. Second offense within a 12-month period: $200.00 civil fine.

c. Third or subsequent offense within a 12-month period: $500.00 civil fine.

(2) For violations of subsection (b) that take place anywhere other than a beach or park within the City, or a City marina, pier, dock, or boat ramp, or for violations of subsections (d) or (e):

a. First offense within a 12-month period: $1,000.00 civil fine.

b. Second offense within a 12-month period: $2,000.00 civil fine.

c. Third or subsequent offense within a 12-month period: $3,000.00 civil fine.

(3) For violations of subsection (b) that take place on a beach or park within the City, or on a City marina, pier, dock, or boat ramp:

a. First offense within a 12-month period: $1,500.00 civil fine;

b. Second offense within a 12-month period: $2,500.00 civil fine; and

c. Third or subsequent offense within a 12-month period: $3,500.00 civil fine.

(4) In lieu of a civil fine, the special master may accept voluntary community service removing litter in the city equivalent to one hour of community service for each $50.00 of an imposed civil fine. If the community service is not completed within six months of an adjudication of guilt, the fine shall be reinstated.

(g) *Prohibitions on commercial handbill distribution.*

(1) *Historic areas.* It shall be unlawful for any person to distribute commercial handbills on the right-of-way in any of the following areas in the City of Miami Beach:

a.

The area bounded on the north by, but not including, 17th Street, bounded on the east by, but not including, Washington Avenue, bounded on the south by Lincoln Lane, and bounded on the west by Alton Road;

b. Ocean Drive from 5th to 15th Streets;

c. Collins Avenue from 5th to 15th Streets;

d. Washington Avenue from 5th to Lincoln Road;

e. All cross streets and bystreets bounded on the north by 15th Street, bounded on the east by Ocean Drive, bounded on the south by 5th Street, and bounded on the west by Washington Avenue;

f. Española Way from Pennsylvania Avenue to Collins Avenue; and

g. Lummus Park.

The prohibitions of this subsection (g) shall apply to the distribution of commercial handbills on any right-of-way, including, but not limited to, any doorway, stairway, window or other opening of a building abutting on or adjacent to such right-of-way. All rights-of-way identified as prohibited areas shall include the entire width of the right-of-way, including all sidewalks.

(2) *Sidewalk cafes.* Commercial handbills shall not be distributed on the right-of-way:

a. Within 20 feet in any direction from the outside perimeter of any approved sidewalk cafe (as indicated in the approved site plan attached to the city-issued permit); and

b. On any right-of-way within the approved sidewalk cafe.

(3) *Beaches.* Commercial handbills shall not be distributed on any city beach east of the dunes.

(h) *Penalties for commercial handbill violations.* If a violation resulted from the throwing, discarding, placing, or depositing, or causing to be thrown, discarded, placed, or deposited, of commercial handbills as litter in violation of subsection (b), or resulted from a violation of subsection (g), then the following civil fines shall be imposed. The special master shall not have discretion to alter these prescribed penalties except as to the per handbill fine of $50.00 provided in subsection (f)(1).

(1) If the offense is the first offense, $100.00 fine, plus $50.00 per handbill for a violation of subsection (b);

(2) If the offense is the second offense within the preceding 12 months, $500.00 fine, plus $50.00 per handbill for a violation of subsection (b);

(3) If the offense is the third or subsequent offense within the preceding 12 months, $1,500.00 fine, plus $50.00 per handbill for a violation of subsection (b);

(4)

Notwithstanding subsections (h)(1)—(3), no person or benefactor shall receive more than one offense within any one-day period, however, the $50.00 per handbill fine shall apply to all littered handbills found during that one-day period for a violation of subsection (b).

(i) *Commercial handbill presumption.* At any prosecution for violation of this section when the litter involved is a commercial handbill, if ten or more commercial handbills advertising the same business are found in plain view as litter under circumstances that make it more likely than not that the commercial handbills were placed there, or caused to be placed there, by an agent, employee, contractor, promoter, or other representative of the business advertised on the face of the commercial handbills, the special master shall apply a rebuttable presumption that the business advertised on the face of the handbills threw, discarded, placed or deposited the commercial handbills as litter.

(j) *Securing of commercial handbill litter by the city.* If a person is found littering with commercial handbills, the code compliance officer is authorized to seize, for use as evidence in the prosecution of the violator before the special master, all commercial handbills in the possession of the violator.

(k) *Removal of litter by the city.* The city may cause the removal, at the violator's expense, of all litter distributed or placed in violation of this section.

(l) *Enforcement by code compliance officers; notice of violation.* If a code compliance officer (which, as defined in section 70-66, includes a police officer) finds a violation of this article, such code compliance officer shall issue a notice of violation. The notice shall inform the violator of the nature of the violation, amount of fine for which the violator may be liable, instructions and due date for paying the fine, notice that the violation may be appealed by requesting an administrative hearing within 10 days after service of the notice of violation, and that failure to do so shall constitute an admission of the violations and waiver of the right to a hearing.

(m) *Rights of violators; payment of fine; right to appeal; failure to pay civil fine or to appeal.*

(1) A violator who has been served with a civil notice of violation shall elect either to:

a. Pay the civil fine in the manner indicated on the notice; or

b. Request an administrative hearing before a special master to appeal the notice of violation, which hearing must be requested within ten (10) days of service of the notice of violation.

(2) The procedures for appeal by administrative hearing of the notice of violation shall be as set forth in sections 30-72 and 30-73 of the City Code.

(3) The failure to pay the civil fine, or to timely request an administrative hearing before a special master, shall constitute a waiver of the violator's right to administrative hearing before the special master, and shall be treated as an admission of the violation, for which fines and

penalties may be assessed accordingly.

(4) Any party aggrieved by a decision of the special master may appeal that decision to a court of competent jurisdiction.

(5) The special master shall be prohibited from hearing the merits of the notice of violation or considering the timeliness of a request for an administrative hearing if the violator has failed to request an administrative hearing within ten {10) days of the service of the notice of violation.

(6) Other than the option to accept voluntary community service in lieu of a civil fine pursuant to subsection (f)(4), the special master shall not have discretion to alter the penalties prescribed in subsections (f)(1), (f)(2) or (f)(3).

(n) *Recovery of unpaid fines; unpaid fines to constitute a lien; foreclosure.*

(1) The city may institute proceedings in a court of competent jurisdiction to compel payment of civil fines.

(2) A certified copy of an order imposing a civil fine may be recorded in the public records and thereafter shall constitute a lien upon any other real or personal property owned by the violator, which may be enforced in the same manner as a court judgment by the sheriffs of this state, including levy against the violator's real or personal property, but shall not be deemed to be a court judgment except for enforcement purposes. Three (3) months after the recording of any such lien which remains unpaid, the city may foreclose or otherwise execute upon the lien, for the amount of the lien, plus accrued interest.

(o) *Planning board authority.* Nothing in this article shall limit or restrict any condition or limitation imposed by the planning board.

(p) *Injunctive relief.* As an additional means of enforcement, the city may seek injunctive relief and/or follow procedures to revoke a business tax receipt and/or certificate of use as set forth in chapters 14, 18 and 102 of the City Code when there are more than three offenses by the same violator within a calendar year.

(Code 1964, § 3-7; Ord. No. 94-2913, § 1(3-7), 3-16-94; Ord. No. 2007-3560, § 1, 6-6-07; Ord. No. 2009-3644, § 1, 7-15-09; Ord. No. 2010-3708, § 1, 11-17-10; Ord. No. 2012-3759, § 1, 4-11-12; Ord. No. 2014-3884, § 1, 7-23-14; Ord. No. 2014-3903, § 1, 11-19-14; Ord. No. 2015-3923, § 1, 2-11-15; Ord. No. 2015-3981, § 1, 12-9-15)

Cross reference— Public property, ch. 82; beaches generally, § 82-436 et seq.

MORE OCEAN
LESS PLASTIC
THE 5 GYRES INSTITUTE

STATEMENT IN SUPPORT OF CULVER CITY POLYSTYRENE BAN
Presented 9.15.16 by Rachel Lincoln Sarnoff, Executive Director

Toxic styrene—the primary component of polystyrene—is proven to be carcinogenic to animals, and is a probable human carcinogen. It can migrate from containers into food and drinks when it comes in contact with fatty or acidic foods, and when heated—like for your coffee or take out. According to the Toxnet Hazardous Substances Databank, today, all humans have styrene residues in their bodies.

Like most plastics, styrene, the building block of polystyrene and Styrofoam, is a petrochemical, which means it is derived from oil. But how Styrofoam is made is extremely dangerous to the environment: Although the industry has phased out chlorofluorocarbons (CFCs), polystyrene production releases greenhouse gases that harm the ozone layer and contribute to global warming. The EPA ranks its manufacturing as the fifth worst global industry in terms of hazardous waste creation.

Polystyrene is rarely recycled, as it's difficult for most facilities to process it and there's no market to sell it. Today, market value is a problem for most recycled materials: When oil markets are depressed, virgin petroleum-based products become far cheaper to buy than recycled. In general, this problem affects the long-term viability of recycling as a solution to the plastic pollution problem.

Without a profitable market in which to sell it, it's not cost-effective for many recycling companies to process materials—so they sell the trash to other countries at a loss. In 2011, China imported nearly half of America's plastic waste. In countries like India or the Phillipines waste pickers sort through the trash to find the pieces that are most valuable—thicker plastics and metals. The remainder becomes landfilled or piles up in communities, creating a health crisis for the people who live there. Local waterways act like conveyor belts, sending plastics straight out to sea: Eight million metric tons of plastic enter the ocean each year.

In 2014, 5 Gyres convened eight scientists around the world to publish the first global estimate of plastic pollution in our oceans: 5.25 trillion particles weighing in at 270,000 tons of "plastic smog" worldwide. A significant portion are polystyrene particles. In fact, one California study showed Styrofoam is the second most common form of plastic found on our beaches.

Starbucks sells 400 billion cups of coffee annually—each with a polystyrene lid. That breaks down to *more than a billion polystyrene lids each day*, for one brand alone. Americans toss 25 trillion Styrofoam coffee cups each year.

We can't recycle our way out of that kind of trash. We have to reduce our contribution to the problem, by limiting consumer access to polystyrene products and encouraging more sustainable and reusable options.

ORDINANCE NO. 14-0003

AN ORDINANCE OF THE CITY OF MANHATTAN BEACH AMENDING CHAPTER 5.80 OF TITLE 5 OF THE MANHATTAN BEACH MUNICIPAL CODE REGARDING THE PROHIBITION AGAINST THE SALE AND DISTRIBUTION OF CERTAIN POLYSTYRENE PRODUCTS

WHEREAS, polystyrene, a lightweight petroleum-based plastic material, is commonly littered or blown out of trash receptacles and migrates to the storm drain system and eventually to the ocean and beaches;

WHEREAS, littered polystyrene, especially expanded foam, is difficult to clean up and may cumulatively result in increased litter;

WHEREAS, polystyrene breaks down in the marine environment into smaller pieces, which negatively impacts water quality and harms marine wildlife that often mistake pieces of polystyrene for food;

WHEREAS, reduction of polystyrene in the environment will advance compliance with Federal, State and City clean water mandates, including compliance with the Total Maximum Daily Loads and other requirements of the National Pollutant Discharge Elimination System;

WHEREAS, education about and reduction of food-soiled polystyrene food service ware, which can be difficult to clean and recycle, may advance waste stream reduction and recycling efforts and reduce the presence of this non-biodegradable material in landfills; and

WHEREAS, polystyrene has been shown to pose human health impacts to workers and consumers and these impacts can be mitigated by reducing its use.

THE MANHATTAN BEACH CITY COUNCIL HEREBY ORDAINS AS FOLLOWS:

SECTION 1. CEQA Finding. This Ordinance is exempt from the environmental review requirements of the California Environmental Quality Act (CEQA) pursuant to Section 15061(b)(3) of Title 14 of the California Code of Regulations because it can be seen with certainty that there is no possibility that the activity in question may have a significant effect on the environment. Further, the proposed Ordinance is exempt from CEQA on the separate and independent ground that it is an action of a regulatory agency (the City) for the protection of the environment because it will strengthen the City's regulations regarding the distribution and sale of polystyrene products. Thus, this Ordinance is categorically exempt from the requirements of CEQA under Section 15308 of Title 14 of the California Code of Regulations as an action by a regulatory agency for the protection of the environment.

SECTION 2. The title of Chapter 5.80 of Title 5 of the Manhattan Beach Municipal Code is hereby amended to read "PROHIBITION ON THE DISTRIBUTION AND SALE OF CERTAIN POLYSTYRENE PRODUCTS".

SECTION 3. The City Council hereby amends Section 5.80.010 (Purpose) in Chapter 5.80 of Title 5 of the Manhattan Beach Municipal Code to read as follows:

"5.80.010 – Purpose.

The purpose of this chapter is to regulate the use of polystyrene products in order to protect the health of Manhattan Beach citizens and promote environmentally sustainable practices in the City."

SECTION 4. The City Council hereby amends the definition of "Disposable Food Service Ware" or "Disposables" and adds a new definition of "Polystyrene Cooler" in Section 5.80.020 (Definitions) in Chapter 5.80 of Title 5 of the Manhattan Beach Municipal Code to read as follows, with all other definitions to remain unchanged:

" "Disposable Food Service Ware" or "Disposables" means single-use, disposable products used for serving or transporting Prepared Food, including but not limited to plates, bowls, trays, wrappers or wrapping, platters, cartons, condiment containers, cups or drink ware, straws, lids, utensils, or any other container in or on which Prepared Foods are placed or packaged for consumption."

"Polystyrene Cooler" means any cooler or ice chest made of polystyrene foam, where such foam is not fully encased in another material."

SECTION 5. The City Council hereby amends Municipal Code Section 5.80.030 by removing subsection (F) and amending subsection (A) to read as follows:

"A. No Food Provider shall distribute or sell any Polystyrene Food Service Ware in conjunction with the sale of Prepared Food at any location within the City."

SECTION 6. The City Council hereby adds a new Section 5.80.035 to Chapter 5.80 of Title 5 of the Manhattan Beach Municipal Code to read as follows:

"5.80.035 Prohibition against sale of polystyrene food service ware and polystyrene coolers.

No Person shall sell any Polystyrene Food Service Ware or Polystyrene Cooler at any location within the City."

SECTION 7. The City Council hereby amends Section 5.80.040 (Exemptions) in Chapter 5.80 of Title 5 of the Manhattan Beach Municipal Code to read as follows:

"5.80.040 Exemptions.

A. The following are exempt from the provisions of this chapter:

1. Food prepared or packaged outside of the City, provided such food is not altered, packaged or repackaged within the City limits.

2. Coolers and ice chests, other than those defined as Polystyrene Coolers in this chapter.

3. Food brought by individuals for personal consumption to City Facilities, including but not limited to City parks and the beach, provided the City Facility is being

used for individual recreation or similar purposes and such facility use is not part of a larger organized event that is otherwise governed by Section 5.80.030.

B. Food Providers that are obligated to purchase or have purchased Polystyrene Food Service Ware under a contract entered into within the year prior to the operative date of this ordinance are exempt from the provisions of this chapter for six months following its operative date.

C. The City Manager or his/her designee may exempt any Person from section 5.80.030 following the operative date of this ordinance, as follows:

1. A request for an exemption shall be filed in writing with the City Manager or his/her designee and shall include documentation of the reason for the claimed exemption and any other information necessary for the City to make its decision. The City may require the applicant to provide additional information as necessary to make the required determinations.

2. The City Manager or his/her designee may approve the exemption for a maximum of one (1) year, with or without conditions, upon finding that compliance would create an undue hardship. Undue hardship shall be construed to include but not be limited to situations where:

a. There are no reasonable alternatives to Polystyrene Food Service Ware for reasons that are unique to the applicant; or

b. Compliance with the requirements of this chapter would deprive a person of a legally protected right. The exemption may be extended for additional terms of up to one year each, upon a showing of the continuation of the legal right.

3. The City Manager's written decision on the exemption is effective within 10 days of the decision. Decisions of the City Manager may be appealed by the Person applying for the exemption to the City Council. Appeals shall be filed in writing with the City Clerk within 10 days of the decision and shall be accompanied by a fee set by resolution of the City Council. Notice of hearing shall be given to the applicant at least 10 days prior to the hearing. The City Council shall make its decision within 60 days of receiving the appeal."

SECTION 8. The City Council hereby adds a new Section 5.80.045 to Chapter 5.80 of Title 5 of the Manhattan Beach Municipal Code to read as follows:

"5.80.045 Certification of compliance.

All businesses that are subject to this chapter shall certify compliance with this chapter on the annual business license renewal application."

SECTION 9. If any sentence, clause, or phrase of this Ordinance is for any reason held to be unconstitutional or otherwise invalid, such decision shall not affect the validity of the remaining provisions of this Ordinance. The City Council hereby declares that it would have adopted this Ordinance and each sentence, clause or phrase thereof irrespective of the fact that any one or more sentences, clauses or phrases be declared unconstitutional or otherwise invalid.

SECTION 10. The City Clerk shall certify to the passage and adoption of this Ordinance and shall cause this Ordinance to be published within 15 days after its passage, in accordance with Section 36933 of the Government Code.

SECTION 11. This Ordinance shall go into effect and be in full force and effect at 12:01 a.m. on the 31st day after its passage.

PASSED, APPROVED AND ADOPTED this _____ of _____, 2014.

AYES:
NOES:
ABSENT:
ABSTAIN:

_____
AMY HOWORTH
Mayor

ATTEST:

_____
LIZA TAMURA
City Clerk

APPROVED AS TO FORM:

_____
QUINN M. BARROW
City Attorney