

The seal of the U.S. Department of Commerce is centered in the background. It features an eagle with wings spread, perched atop a shield. The shield contains a ship's mast and a bundle of goods. The words "DEPARTMENT OF COMMERCE" are written in a circle around the eagle, and "UNITED STATES OF AMERICA" is written in a larger circle at the bottom. Two stars are positioned on either side of the shield.

USDC Verified Facilities  
of  
Fishery Products Treated with  
Carbon Monoxide and Filtered  
Smoke Gas

U.S. Department of Commerce  
National Oceanic and Atmospheric Administration  
Seafood Inspection Program

**Program Policy**  
**Fishery Products Treated with Carbon Monoxide and Filtered Smoke Gas**

In 1997, the USDC Seafood Inspection Program became aware of a process that employs a filtered wood smoke that at least one processing company, Hawaii International Seafoods, Inc., termed "tasteless smoke" (TS). The purpose of its application is to retard the development of the brown color that rapidly occurs in tuna flesh after it has been cut. Although carbon monoxide (CO) is a component of the "tasteless smoke", its concentration is similar to that found in normal wood smoke. Unlike some other processes that result in the color of the product being enhanced or brightened and fixed through the direct use of CO at significantly higher concentrations and/or longer exposure times, this process, when used with appropriate controls, reportedly does not enhance the natural flesh color of tuna, and the color of the flesh eventually degrades over time. There is no evidence to suggest that "tasteless smoke" poses a health risk to the consumer from the ingestion of treated product.

On September 3, 1998, Richard Cano signed a policy indicating that only seafood treated with "tasteless smoke" gas from verified facilities named in the policy would be permitted to be lot inspected and bear our mark once it arrived in the United States. The list of accepted facilities would be updated as necessary.

In May 1999, FDA issued Import Bulletin 16B-95 which included instructions that tuna treated with "tasteless smoke" or CO should be:

- labeled as processed foods that have been treated with CO or TS,
- not misrepresented as fresh frozen seafood by their label, and
- near normal in flesh color

As a result of Import Bulletin 16B-95, the USDC Seafood Inspection Program policy was expanded to include facilities treating products with carbon monoxide mixtures.

Hawaii International has provided data to support their view that "tasteless smoke" is GRAS by submitting a GRAS notification document to FDA's Office of Premarket Approval. On March 10, 2000 FDA has responded that the agency has no questions at this time regarding the conclusion of Hawaii International that tasteless smoke is GRAS for use on raw tuna, before it is frozen, to preserve its taste, aroma, texture, and color. The agency has not, however, made its own determination regarding the GRAS status of this use of tasteless smoke. The FDA response further reiterates that any firm who markets tuna that has been preserved with tasteless smoke is responsible for ensuring that such tuna is neither adulterated nor misbranded under sections 402 and 403 of the Federal Food, Drug, and Cosmetic Act.

**USDC Seafood Inspection Program Policy**

USDC has implemented a policy within its voluntary Seafood Inspection Program to lot inspect and certify tuna products treated with filtered wood smoke or carbon monoxide only if those products originate from firms that USDC has verified employ acceptable process controls. The products must also be in compliance with all other applicable legal and regulatory requirements.

### **Verification Protocol**

The verification protocol encompasses several parameters. First, the firm's HACCP and sanitation operation are evaluated for compliance to FDA regulations, in particular 21CFR Part 123. Color readings are taken of a sampling of tuna steaks using a HunterLab color difference meter. Steaks are sampled with readings taken after the first cut, after exposure to the gas, and at thirty, ninety, and one hundred fifty-day intervals in frozen storage. After frozen storage, at each of the intervals, the steaks are thawed and stored chilled under conditions similar to that found in retail stores. Each day for the next five days, the steaks are analyzed for color readings and sensory indicators. All readings are charted and analyzed using HunterLab software. Photographs are taken at each stage of one steak that has been treated and a control.

Samples of the gas are also taken at the source and analyzed for various constituents, including carbon monoxide. Histamine analyses are also performed on representative product samples.

Audits of production facilities are performed twice per year.

### **Additional Activities**

In an effort to determine criteria to objectively describe "near normal in flesh color", the USDC Seafood Inspection Program has collected color data at each facility. This data was used to develop a process/color specification that was evaluated with industry assistance since February. Additional tests occurred that evaluated the effect of filtered smoke and carbon monoxide on tuna at varied stages of deterioration. The conclusion of the studies will be published and the colormetric standard announced in the Federal Register in the near future.

### **Verified Facilities**

Below are the facilities currently in compliance with this policy. This list supersedes the list of April 4, 2002 and will be replaced as new facilities are added or deleted. Unless indicated, all vacuum-packed product forms must be in the frozen state. The Program is aware that other fish species are being treated with the process, such as tilapia, swordfish, and mahi-mahi. It is planned that color data will be collected on these species as well. Until then, the Program will not hinder commerce by limiting the lot inspection to only tuna products from these facilities, as long as all other USFDA and USDC requirements are met. Questions should be directed to:

USDC Seafood Inspection Program  
1315 East-West Highway, F/SI  
Silver Spring, Maryland 20910  
Phone: 301-713-2355  
FAX: 301-713-1081  
E-Mail: [Kenneth.Aadsen@noaa.gov](mailto:Kenneth.Aadsen@noaa.gov)  
E-Mail: [Steven.Wilson@noaa.gov](mailto:Steven.Wilson@noaa.gov)

Firms new to the list are indicated with a  symbol.

## Facilities Utilizing Carbon Monoxide Gas Mixtures

### PT. Balinusa Windumas

Jalan Ikan Tuna 2  
Pelabuhan Benoa, Denpasar  
Bali, Indonesia  
Phone: 62361-722688  
FAX: 62361-723636  
E-Mail: [balinusa@dps.centrin.net.id](mailto:balinusa@dps.centrin.net.id)

### Mardex CIA. LTDA

Ave. 102 Los Esteros  
Casilla  
13053894 Manta  
Ecuador  
Phone: 593-562-0250  
FAX: 593-5625832  
E-Mail: [oschwarz1956@hotmail.com](mailto:oschwarz1956@hotmail.com)  
ATTN: Otto Schwarz G.

## Facilities Utilizing Filtered Wood Smoke

### Citra Mina Seafood Market

004 Cabe Subdivision, Lagao Road  
Tambler  
General Santos City, Philippines  
Phone: 6383-552-8136  
FAX: 6383-552-2654  
E-Mail: [mgtr@gsc.webling.com](mailto:mgtr@gsc.webling.com)

### Angel Seafood Corporation

Tambler  
General Santos City, Philippines  
Phone: 6383-553-8848  
FAX: 6383-552-2794  
E-Mail: [amerasia@mkt.webling.com](mailto:amerasia@mkt.webling.com)

### East Asia Fish Company, Inc.

EAFCI Building  
Davao Fish Port Complex  
Daliao Toril District  
Davao City, Philippines  
Phone: 6382-291-3397  
FAX: 6382-291-3398  
E-Mail: [stjames@epic.net](mailto:stjames@epic.net)

### PT. Lautan Niaga Jaya

Perum Prasarana Perikanan Samudra  
Jalan Muara Baru Ujung Blok B 168  
Jakarta Utara – 14440  
Phone: 6221-661-4154/661-7874/6669-1965  
FAX: 6221-661-9641  
E-Mail: [lautanniaga@cbn.net.id](mailto:lautanniaga@cbn.net.id)

### FrigoLab "San Mateo"

Via San Mateo, Km 4 ½  
Manta, Ecuador  
Phone: 593-5-628701  
FAX: 593-5-628688

### Evergreen Enterprises

#2 Tomas Claudio St.  
7000 Zamboanga City  
Philippines

#### Plant Location

Philippine Kingford, Inc.  
Tambler  
General Santos City, Philippines  
Phone: 6383-380-7301  
FAX: 6383-380-7333  
E-Mail: [kingford@pacific.net.ph](mailto:kingford@pacific.net.ph)

### Hoom Xiang Industries Sdn. Bhd.

2-24, Taman Perindustrian IKS, Perda  
Lorong F, Simpang Ampat.  
14100 S.P.S. Penang  
Malaysia  
Phone: 604-587-1560  
FAX: 604-587-1851  
E-Mail:  
ATTN: Ooi Wee Seong, Marketing Manager

### Mommy Gina Tuna Resources

004 Cabe Subdivision, Lagao Road  
Tambler  
General Santos City, Philippines  
Phone: 6383-552-8136  
FAX: 6383-552-2654  
E-Mail: [mgtr@gsc.webling.com](mailto:mgtr@gsc.webling.com)

**Pacific Seafood Company, LTD**   
1004A Au Co Street  
Ward 19  
Tan Binh District  
Ho Chi Minh City, Viet Nam  
Phone: 848-974-3817  
FAX: 848-974-3817  
E-Mail: [pacific-seafood@hcm.vnn.vn](mailto:pacific-seafood@hcm.vnn.vn)  
Contact: Phan Xuan Trang, Managing Director

**Philippine Kingford, Inc.**  
181 Roxas Boulevard, Baclaran  
1700 Paranaque, Metro Manila  
Philippines  
Phone: 6383-380-7301  
FAX: 6383-380-7333  
E-Mail: [kingford@pacific.net.ph](mailto:kingford@pacific.net.ph)

**Phillips Seafood**  
2<sup>nd</sup> Floor Refrigeration Building  
Fish Port Complex  
Brgy. Tambler, General Santos City  
Philippines 9500  
Phone: 6383-302-5957  
FAX: 6383-302-5958  
E-Mail: [phillips@gsc.weblinq.com](mailto:phillips@gsc.weblinq.com)

**PT. Danaumatano Persada Raya**  
Jakarta Fishing Port  
Jalan Muara Baru Ujung Blok G/1-2  
Jakarta Utara 14440  
Indonesia  
Phone:  
FAX:  
E-Mail:

**Philippine Cinmic Industrial Corp.**  
C/O 181 Roxas Boulevard, Baclaran  
1700 Paranaque, Metro Manila  
Philippines

Plant Location  
Philippine Kingford, Inc.  
Tambler  
General Santos City, Philippines  
Phone: 6383-380-7301  
FAX: 6383-380-7333  
E-Mail: [kingford@pacific.net.ph](mailto:kingford@pacific.net.ph)

**Phillips Seafood Indonesia**  
Sulawesi Plant  
Jalan Lemelleng #42  
Bojo Baaru, Mallusetasi  
Barru, Sulawesi Selatan  
Pare Pare, Indonesia  
Phone: 62-421-21105  
FAX:  
E-Mail:

**PT. Bonecom**  
JL Muara Baru Ujung, Blok L, No. 1  
Jakarta Utara 14440, Indonesia  
Phone: 6221-661-6686  
FAX: 6221-662-6686  
E-Mail: [tjandra@bonecom.co.id](mailto:tjandra@bonecom.co.id)

**PT. Hatindo Makmur**  
Kompleks Pelabuhan Bena  
Jalan Ikan Tuna III No. 2  
Bena, Denpasar  
Bali, Indonesia 80223  
Phone: 62361-724095  
FAX: 62361-724097

**PT. Fajar Cakrawala Sumbindo**

Jalan Ikan Tuna III  
Pelabuhan Benoa Bali  
Indonesia  
Phone: 62361-721386  
FAX: 62361-724009  
E-Mail: [sumbindo@indo.net.id](mailto:sumbindo@indo.net.id)

**PT. Intisamudera Citra Perkasa**

Jalan Ikan Tunaraya Blok No. 1  
Pelabuhan Benoa, Denpasar Bali  
Indonesia  
Phone: 62361-724526  
FAX: 62361-724527  
E-Mail: [shihchihhsing@kimo.com](mailto:shihchihhsing@kimo.com)

**PT. Makmur Jaya Sejahtera**

Jalan Ikan Tuna Raya  
Pelabuhan Benoa  
Bali, Indonesia  
Phone: 0361-724246  
FAX: 0361-721159  
E-Mail: [jorgih@indo.net.id](mailto:jorgih@indo.net.id)

**PT. Satu Enam Delapan Benoa**

Kompleks Pelabuhan Benoa  
Jalan Ikan Tuna III No. 2  
Benoa, Denpasar  
Bali, Indonesia 80223  
Phone: 62361-724095  
FAX: 62361-724097

**Santa Cruz Seafoods, Inc.**

Dole Compound, Calumpang  
General Santos City, Philippines  
Phone: 6383-553-5387/4102/4103  
FAX: 6383-553-2194  
E-Mail: [stacruz@mozcom.com](mailto:stacruz@mozcom.com)

**PT. Intimas Surya**

Jalan Ikan Tuna Raya  
Pelabuhan Benoa  
Bali, Indonesia  
Phone: 0361-724246  
FAX: 0361-721159  
E-Mail: [jorgih@indo.net.id](mailto:jorgih@indo.net.id)

**PT. Lucky Samudra Pratama**

Jalan Muara Baru Ujung  
Blok F No.1  
Jakarta Utara, 14440  
Indonesia  
Phone: 6221-662-3275  
FAX: 6221-662-3276  
E-Mail: [misai@cbn.net.id](mailto:misai@cbn.net.id)

**PT. Minasakti Kichitomindo**

Kompleks Pelabuhan Perikanan Samudera  
Jakarta  
Jalan Dermaga Timur Kel. 2 No. 15  
Penjaringan, Jakarta Utara 14440  
Indonesia  
Phone: 6221-669-6076  
FAX: 6221-669-6056  
E-Mail: [minasakti@link.net.id](mailto:minasakti@link.net.id)

**PT. Segarindo Mina Manunggal**

Kompleks Bandengan Megan  
Jalan Bandengan Utara  
Kav 81, Blok B, No 10  
Jakarta 14440, Indonesia  
Phone: 6221-667-0505  
FAX: 6221-662-5825  
E-Mail: [hartonot@indo.net.id](mailto:hartonot@indo.net.id)

**Sea Source Corporation**

37 Annapolis Street  
Room 203  
Greenhills, San Juan  
Metro Manila, Philippines 1505  
Phone: 632-723-8799

Plant Location

Angel Seafood Corporation  
Tambler  
General Santos City, Philippines  
Phone: 6383-553-8848  
FAX: 6383-552-2794  
E-Mail: [amerasia@mkt.webling.com](mailto:amerasia@mkt.webling.com)

**Thai Ocean Venture Co. Ltd.**

64/213 Moo 7  
Anupaspukelkan Road  
T. Ratdsada  
A. Muang Phuket 83000  
Thailand  
Phone: 76-252582  
FAX: 76-252597  
Contact: Paol Yu, Managing Director  
E-Mail: [tovpaolyu@phuketinternet.co.th](mailto:tovpaolyu@phuketinternet.co.th)

**Truc An Co., Ltd.**

Lot A12-13  
Suoi Dau Industrial Zone  
Dien Khanh District  
Khanh Hoa Province, Vietnam  
Phone: 8458-743173  
FAX: 8458-821175  
E-Mail: [truc-an@dng.vnn.vn](mailto:truc-an@dng.vnn.vn)

**United Seafood Packers Co., Ltd.**

Lot D1 Dong An Industrial Park  
Road 3  
Thuan An District  
Binh Duong Province  
Viet Nam  
Phone: 84650-782831  
FAX: 84650-782836  
E-Mail: [uspc@hcm.vnn.vn](mailto:uspc@hcm.vnn.vn)  
Contact: Nguyen Thi Minh Trang, Deputy  
General Directo

