What is Salt?

- Mineral composed primarily of sodium chloride.
- Made up of 40% sodium and 60 % chloride by weight.
- Crystalline solid, white, pale pink, or light gray in color normally obtained from sea water or rock deposits.

Forms of Salt

Harvested Salt

Sea/Solar Salt

Mined Salt

Methods of Salt Production: Traditional Evaporation of Seawater

Solar production

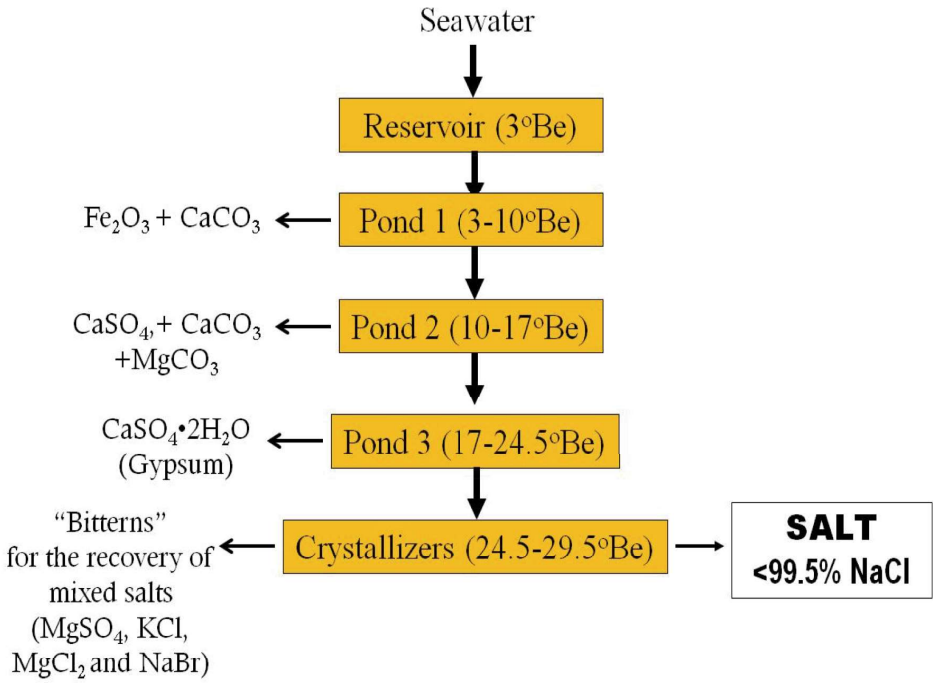
Oldest method of salt production

Evaporation Pond

Crystallizing Pond

Cooking methods

Methods of Salt Production: Solar Salt Production



Fractional Crystallization of Seawater

Methods of Salt Production
Solar Salt Production

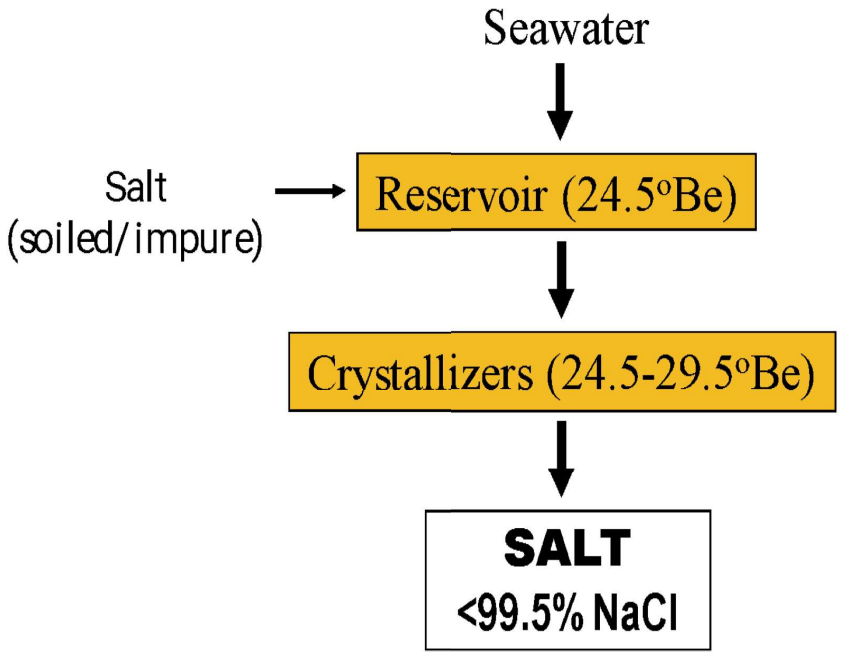
Reservoir

Pond

Crystallizers

Solar Salt

Methods of Salt Production: Salt Cooking Production



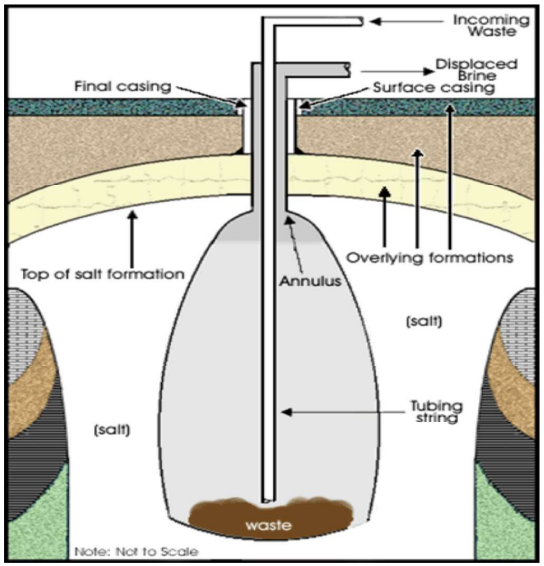
Methods of Salt Production
Salt Cooking Production

Reservoir

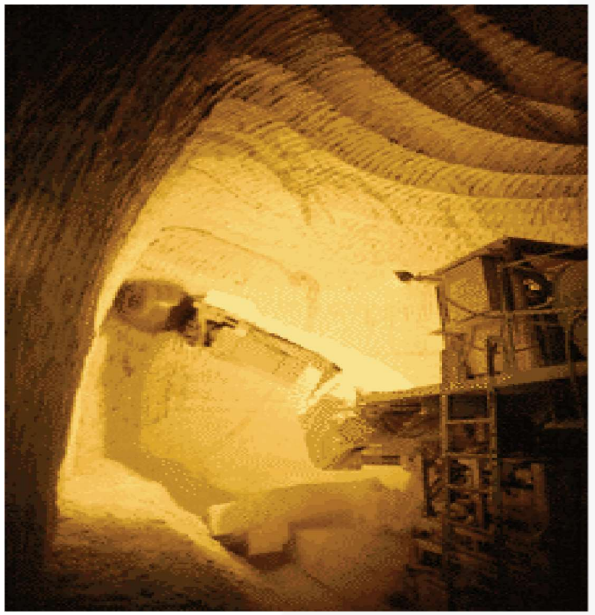
Crystallizers

Cooked Salt

Methods of Salt Production: Rock Salt Mining Method

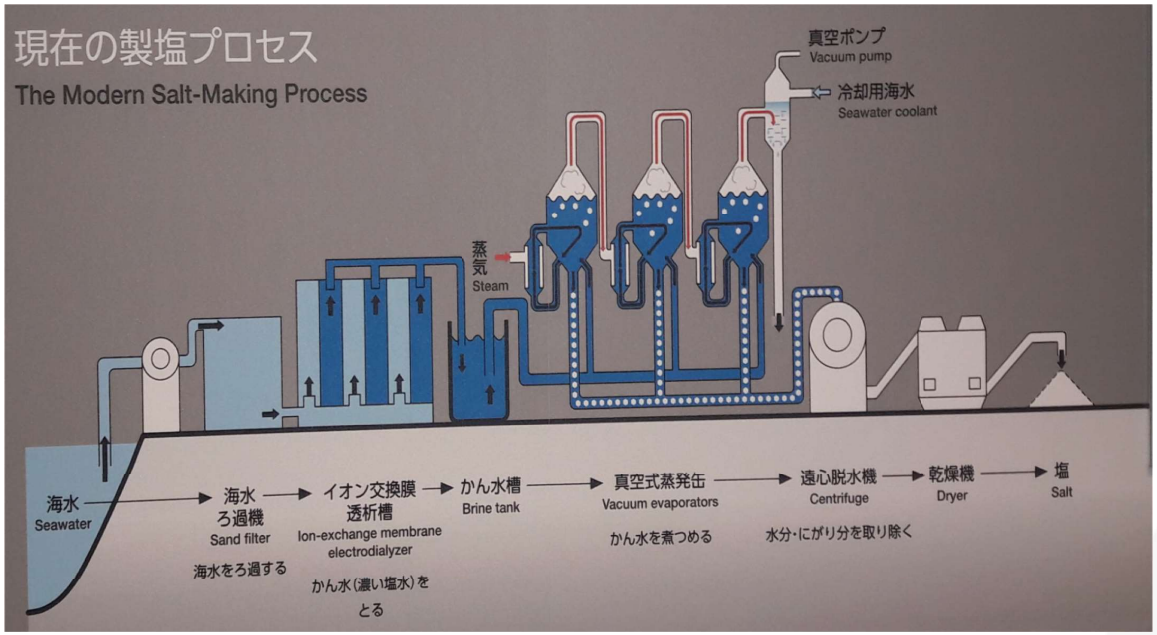


Underground Solution Mining



Surface Deposits Salt Mining

Modern Salt Making (Japan)



Salt Supply in the Philippines

- Estimated national salt demand: 600,000 MT/yr.
- 93% of salt for food (human and animal), 7% for industrial use
- 70%-90% of total national supply is imported (mainly from Australia and China)
- 10%-30% is locally produced, with Ilocos Region contributing at least 56,000 MT & Occ. Mindoro at 75,000 MT

Market Share of Salt

Market Share	Philippines	
Local Solar Salt	33%	
Imported Salt	51%	Mostly controlled by salt importers w/ significant players from Mindoro and Pangasinan
Vacuum Dried Salt (imported)	5%	
Cooked Salt	11%	Mostly controlled by producers from Pangasinan and Ilocos

Uses of Salt

- Food - ex. bagoong, patis

- Industry - ex. tanning of leather

Uses of Salt

- Agriculture - ex. Fertilizer

- Medical - ex. saline solution

Uses of Salt

- Others: Cleaning / Deodorizing / Preservative - ex. soap making

Salt Iodization

Salt

- Cheapest source of iodine
- Most universally consumed in small quantities

ASIN Law - Republic Act 8172

- **A**ct for **S**alt **I**odization **N**ationwide (ASIN) Law
- Enacted in December 1995
  - To contribute to the elimination of micronutrient malnutrition in the Philippines, particularly iodine deficiency disorders (IDD) through cost-effective preventive measure of salt iodization.
- Promotes universal salt iodization and thus requires all producers and manufacturers of food-grade salt to iodize the salt they produce, manufacture, import, trade or distribute for human and animal consumption
- supplemented by **RA 8976** or the **Philippine Food Fortification Act of 2000**

ASIN Law - Republic Act 8172

- DOH-FDA - set and enforce standard and monitor compliance
- LGU - check and monitor quality (health officers, nutritionist, dietitians, sanitary inspectors
- DTI - regulate and monitor trading
- NNC - advisory board, policy-making and coordinating body
- DENR - identify areas for use as salt farms and protect these areas for environmental risks to ensure sustainability of iodized salt production
- DOF – assist the DOH in monitoring salt importation by providing quarterly reports of entries, including names and addresses of importers/consignees and quantity of shipment

ASIN Law – Republic Act No. 8172

- Section 3. Purposes.

f) direct the Department of Science and Technology (DOST), in collaboration with the Technology and Livelihood Resource Center (TLRC), to initiate, promote, and cause the transfer of technology for salt iodization;

- Section 6. Support to the Salt Industry.

c) the DOST, in collaboration with the TLRC, shall develop and implement comprehensive programs for the acquisition of, design and manufacture of salt iodization machines and transfer of salt iodization technology to small and subsistence local salt producers/manufacturers;

ASIN Law – Republic Act No. 8172 IRR

SECTION 4. The Department of Science and Technology (DOST) shall develop and implement a comprehensive program for the acquisition of, design, and manufacture of salt iodization equipment, and transfer of the salt iodization technology to salt producers/manufacturers.

SECTION 5. The Technology and Livelihood Resource Center (TLRC) shall:

a) Assist the DOST in the development and implementation of a comprehensive program for the acquisition of, design and manufacture of salt iodization machines and transfer of salt iodization technology to small and subsistence local salt producers/manufacturers;

b) Provide funding assistance to qualified small producers, especially if located in one of the priority provinces in support of the government's poverty alleviation and industry decentralization drive;

11

c) Develop a program of training entrepreneurs in setting up micro/cottage/small business enterprises to be located in its Technology and Livelihood Resource Center (TLRC) in the provinces;

d) Undertake an all-out information campaign to promote the use of iodized salt nationwide through its tri-media information program and in its business technology courses.

Philippine Salt Industry Development Act

- Oct. 25, 2022: HOR Committee on Agriculture and Food Hearing on HB 1976

Republic of the Philippines
HOUSE OF REPRESENTATIVES
Quezon City, Metro Manila

NINETEENTH CONGRESS
First Regular Session

House Bill No. 1976

Introduced by Representative Ron P. Salo

AN ACT
REVITALIZING THE SALT INDUSTRY, CREATING A COMPREHENSIVE PLAN FOR ITS DEVELOPMENT, PROVIDING INCENTIVES TO SALT FARMERS AND EXPORTERS, PROVIDING FUND THEREFOR, AND FOR OTHER PURPOSES

Be it enacted by the Senate and the House of Representatives of the Philippines in Congress assembled:

SECTION 1. Short Title. – This Act shall be known as the "Philippine Salt Industry Development Act".

Philippine Salt Industry Development Act

- Nov. 17, 2022: HOR Committee on Agriculture and Food TWG on HB 1976, 5537 and 5676

REPUBLIC OF THE PHILIPPINES
HOUSE OF REPRESENTATIVES
Quezon City

NINETEENTH CONGRESS
First Regular Session

House Bill No. 5537

Introduced by **Pangasinan Fifth District Representative**
HON. RAMON N. GUICO JR.

AN ACT
ESTABLISHING THE PHILIPPINE ADVANCED SALT INNOVATION (ASIN) CENTER TO PROMOTE AND ENHANCE THE SALT-MAKING INDUSTRY IN THE PHILIPPINES AND FOR OTHER PURPOSES

Be it enacted by the Senate and House of Representatives of the Philippines in Congress assembled,

SECTION 1. ***Short Title.*** – This act shall be known as the **"Advanced Salt Innovation Act."**

Republic of the Philippines
HOUSE OF REPRESENTATIVES
Quezon City

NINETEENTH CONGRESS
First Regular Session

HOUSE BILL NO. 5676

Introduced by **Representative Wilbert T. Lee**

AN ACT
DEFINING SALT AS AN AQUATIC RESOURCE AND ESTABLISHING A COMPREHENSIVE SALT INDUSTRY ENHANCEMENT PROGRAM, AMENDING FOR THE PURPOSE REPUBLIC ACT NO. 8550, OTHERWISE KNOWN AS "THE PHILIPPINE FISHERIES CODE OF 1998," AND FOR OTHER PURPOSES

Be it enacted by the Senate and House of Representatives of the Philippines in Congress assembled:

SECTION 1. *Short Title.* This Act shall be known as the "Philippine Salt Industry Development Act."

Philippine Salt Industry Development Act

- Nov. 26-27, 2022: Salt Congress in Lingayen, Pangasinan

Philippine Salt Industry Development Act

- Issues and concerns during the Salt Congress
  - Increase production of salt in the Phils (for industrial and food)
  - Passing of House Bill

Philippine Salt Industry Development Act

- Jan. 18, 2023: Senate Committee on Agriculture, Food and Agrarian Reform Public Hearing on Salt Industry Development

- Jan. 26, 2023: Focus Group Discussion on the President's Legislative Priorities – Philippine Salt Industry Development Act: PLLO, DA and BFAR

Bureau of Fisherises and Aquatic Resources (BFAR) version

AN ACT STRENGHTENING AND REVITALIZING THE SALT INDUSTRY IN THE PHILIPPINES, APPROPRIATING FUNDS THEREFOR, AND FOR OTHER PURPOSES

Be it enacted by the Senate and the House of the Representatives of the Philippines in Congress assembled:

SECTION 1. ***Title.*** - This Act shall be known as the "Philippine Salt Industry Development Act".

SECTION 2. ***Declaration of Policy*** - It is hereby declared the policy of the State to promote and support industries that provide security, health, and nutrition, create and generate employment, reduce poverty, promote agricultural development, environmental sustainability and promote inclusive growth.

SECTION 3. Purposes. – The following are the purposes of this Act:

a. Ensure sustainable local salt production and promote livelihood activities;
b. Encourage all salt producers of food-grade salt to iodize the salt that they produce, manufacture, import, trade or distribute; and
c. Provision for locally manufactured machines with improved capacity, efficiency, and quality at competitive costs.

Republic of the Philippines

DEPARTMENT OF SCIENCE AND TECHNOLOGY

MEMORANDUM

APR 2 0 2023

FOR: **USEC. SANCHO A. MABBORANG, DOST-OUSECRO**
DIR. VIRGINIA G. BILGERA, DOST RO NO. 2
ATTY. JASMIN C. BAÑEZ, DOST RO NO. 1
EXEC. DIR. ENRICO C. PARINGIT, PCIEERD
EXEC. DIR. REYNALDO V. EBORA, PCAARRD
DIR. ANNABELLE V. BRIONES, ITDI
DIR. IMELDA ANGELES-AGDEPPA, FNRI

FROM: **LITA S.SUERTE FELIPE**
Director III, DLLO

SUBJECT: HREP Committee on Agriculture and Food – TWG Meeting on 26 April 2023, 1:30 pm via Zoom regarding various bills on salt industry

DATE: 20 April 2023

The House of Representatives (HREP) – Committee on Agriculture and Food will hold a Technical Working Group (TWG) meeting to discuss the drafting of the substitute bill for House Bill (HB) Nos. 1976, 5537, 5676, 7236, 7313 and 7357 pertaining to the "Revitalization of the Salt Industry."

Upon review, DOST was expressly mentioned in:

HB No. 1976 sec. 5	As a member of the ASINDeRO
HB No. 1976 sec. 9 HB No. 5676 sec. 10	As a partner of the DA, et. al. in identifying new areas suitable for government-funded salt projects
HB No. 1976 sec. 10	To provide the necessary technology in the construction of large-scale salt farms employing modern technologies to increase production efficiency and environmentally-sound practices.
HB No. 1976 sec. 15 HB No. 5676 sec. 14	To provide training
HB No. 1976 sec. 16	In providing SAFE Innovation Hubs and Salt Technology Demonstration Centers,
HB No. 1976 sec. 19	In providing incentives and/or benefits
HB No. 1976 sec. 21	To collaborate with DA regarding research and in providing funds

However, we encourage your office to review thoroughly the bills, there may be provisions that may affect the Department and/or your office.

In this regard, may we request you and/or your authorized representative(s) to attend the TWG meeting on 26 April 2023, 1:30 PM via Zoom (Meeting ID: 954 3977 1083 and Passcode: 092141). Furthermore, we would greatly appreciate if we could receive your comments as soon as available.

Enclosed are the following documents for your reference:
(1) Letter from the Committee;
(2) Matrix of Bills; and
(3) DOST Position Paper based on the Draft Bill of the Bureau of Fisheries and Aquatic Resources (BFAR).

For queries, you may email the Committee at agriculturenfood@gmail.com.

Thank you

cc: OSEC, OUSECRD

OUO-23-00225

Postal Address: DOST Complex, General Santos Avenue
Bicutan, Taguig City 1631
P.O. Box 3596 Manila
Website : www.dost.gov.ph

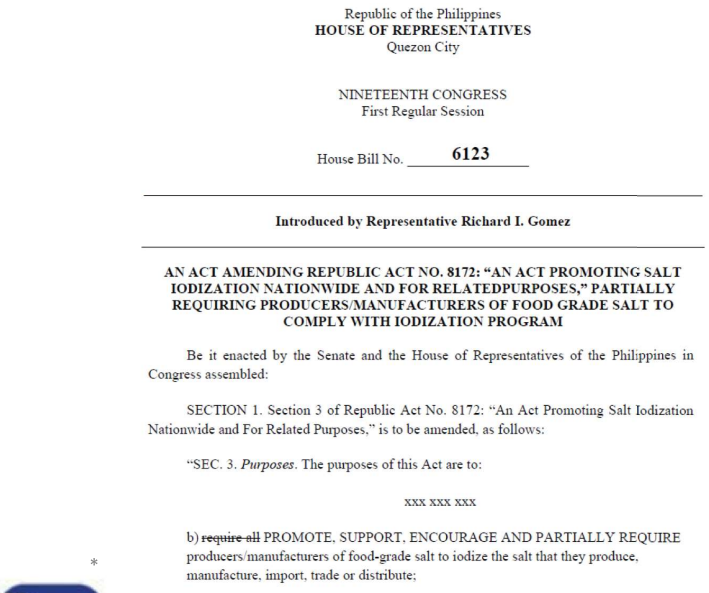
Tel. Nos.: Trunkline (+632) 8837-2071 to 82; 8837-3171 to 89
Fax No. : OSEC (+632) 8837-2937; Records (+632) 8837-7493

PROVISION	RECOMMENDATIONS
Sec. 4. Definition of Terms b. Iodized Salt – refers to salt artificially spray-coated with iodine.	 b. Iodized Salt – refers to the salt incorporated with iodine.
Sec. 5. Philippine Salt Industry Roadmap (PSIDR) m. _____	 m. Support research and development (R&D) activities for salt revitalization.
Sec. 7. Functions of the PSIDC a. Formulate the Philippine Salt Industry Development Roadmap containing the short-term, medium term, and long-term development plan covering a period of five (5) years;	 a. Formulate the Philippine Salt Industry Development Roadmap containing the short-term, medium term, and long-term development plan covering a period of and even beyond five (5) years;
Sec. 13. Training / Development Programs - The DA, together with the DOST, DTI, FDA, and TESDA, shall provide	 - The DA, together with other government offices such as but not limited to the

PROVISION	RECOMMENDATIONS
complementary training programs to develop/upgrade the skills and competencies of Philippine salt farmers and producers, ensure product traceability and compliance to food safety, technology acquisition including product labelling and packaging, conduct continuous training on market positioning for Philippine artisanal/specialty and industrial salts and such other skills necessary in the maintenance and development of the local salt industry.	DOST, DTI, FDA, and TESDA, shall provide complementary training programs to develop/upgrade the skills and competencies of Philippine salt farmers and producers, ensure product traceability and compliance to food safety, technology acquisition including product labelling and packaging, conduct continuous training on market positioning for Philippine artisanal/specialty and industrial salts and such other skills necessary in the maintenance and development of the local salt industry. The roles of each government offices involved shall be specified in the implementing rules and regulations of this Act.
Sec. 19. Role of LGUs. – xxx LGUs in cooperation with the DA-NFRDI, DENR, DTI and the DOST-FPRDI, and in consultation with the DA and BFAR, shall identify appropriate areas for local salt production in their respective localities.	LGUs in cooperation with the DA-NFRDI, DENR, DTI and the appropriate DOST-Regional Office, and in consultation with the DA, BFAR and the Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (PCAARRD), shall identify appropriate areas for local salt production in their respective localities.
Sec. 21. Control Measures BFAR shall continue to implement measures ensuring compliance of salt farmers with food safety laws and guidelines intended for food and animal consumption.	BFAR shall continue to implement measures ensuring compliance of salt farmers with food safety laws and guidelines intended for food and animal consumption. BFAR shall tap the expertise of PCAARRD and the Food and Nutrition Research Institute.
Sec. 22. Research – xxx The DOST Forest Products Research and Development Institute (DOST-FPRDI) shall be tasked to develop and implement a comprehensive program for the acquisition, design, and manufacture of salt iodization	The DOST Philippine Council for Industry, Energy and Emerging Technology Research and Development Council (PCIEERD), as lead together with other relevant DOST offices and

PROVISION	RECOMMENDATIONS
equipment, and transfer of the salt iodization technology to salt producers/manufacturers.	agencies shall be tasked to develop and implement a comprehensive program for the acquisition, design, and manufacture of salt iodization equipment, and transfer of the salt iodization technology to salt producers/manufacturers.

- Feb 22, 2023: HOR Committee Health convened meeting of stakeholders



Republic of the Philippines
HOUSE OF REPRESENTATIVES
Quezon City

NINETEENTH CONGRESS
First Regular Session

House Bill No. **6123**

Introduced by Representative Richard I. Gomez

AN ACT AMENDING REPUBLIC ACT NO. 8172: "AN ACT PROMOTING SALT IODIZATION NATIONWIDE AND FOR RELATEDPURPOSES," PARTIALLY REQUIRING PRODUCERS/MANUFACTURERS OF FOOD GRADE SALT TO COMPLY WITH IODIZATION PROGRAM

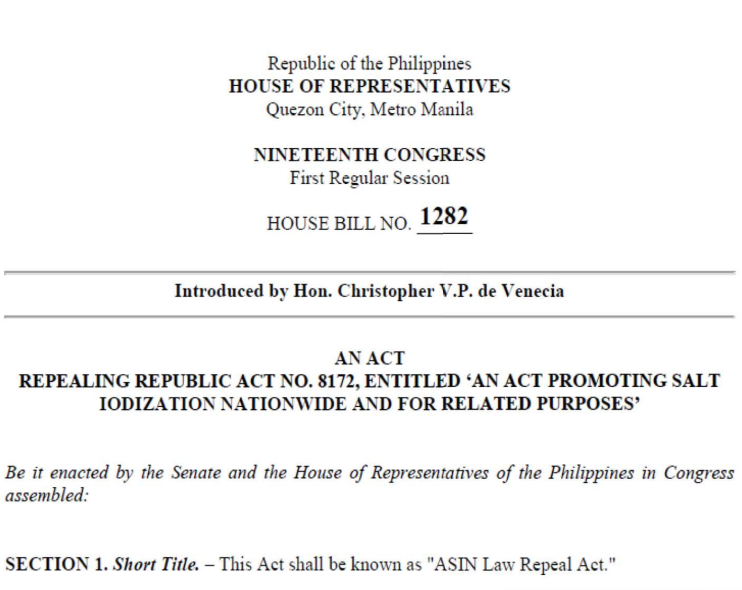
Be it enacted by the Senate and the House of Representatives of the Philippines in Congress assembled:

SECTION 1. Section 3 of Republic Act No. 8172: "An Act Promoting Salt Iodization Nationwide and For Related Purposes," is to be amended, as follows:

"SEC. 3. *Purposes*. The purposes of this Act are to:

xxx xxx xxx

b) ~~require all~~ PROMOTE, SUPPORT, ENCOURAGE AND PARTIALLY REQUIRE producers/manufacturers of food-grade salt to iodize the salt that they produce, manufacture, import, trade or distribute;



Republic of the Philippines
HOUSE OF REPRESENTATIVES
Quezon City, Metro Manila

NINETEENTH CONGRESS
First Regular Session

HOUSE BILL NO. **1282**

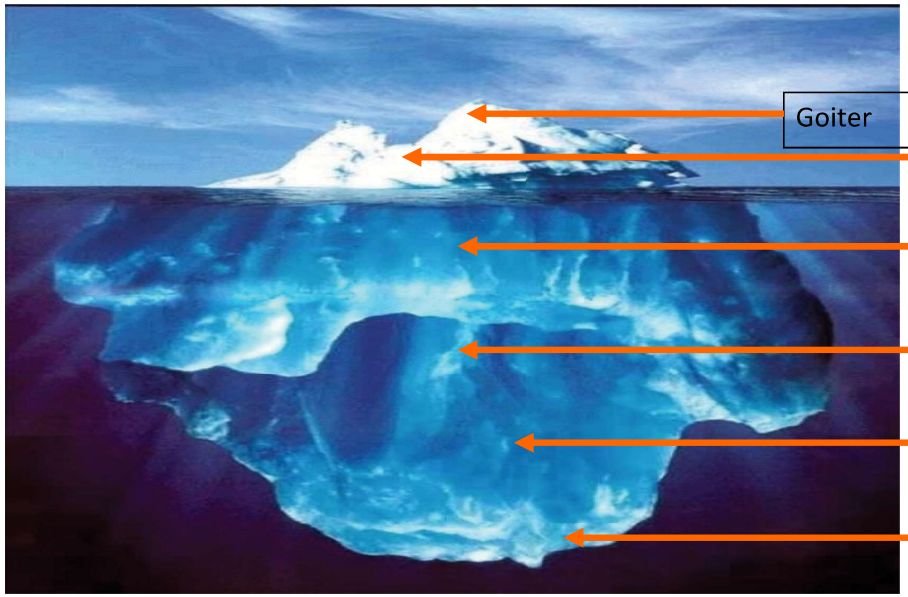
Introduced by Hon. Christopher V.P. de Venecia

AN ACT
REPEALING REPUBLIC ACT NO. 8172, ENTITLED 'AN ACT PROMOTING SALT IODIZATION NATIONWIDE AND FOR RELATED PURPOSES'

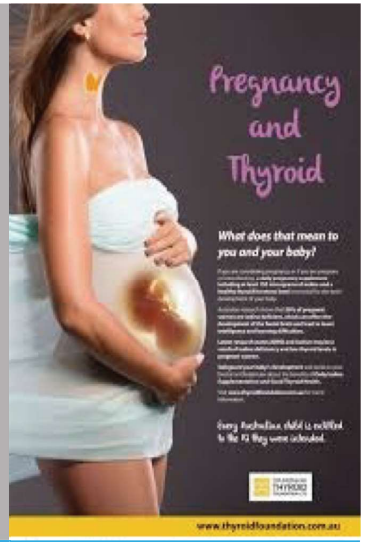
Be it enacted by the Senate and the House of Representatives of the Philippines in Congress assembled:

SECTION 1. ***Short Title.*** – This Act shall be known as "ASIN Law Repeal Act."

Iodine Deficiency Disorder (IDD)



Iodine Deficiency Disorder (IDD)



Country Overview

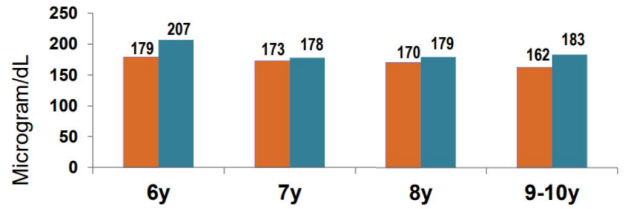
Median UIE levels and iodine levels in household salt, Philippines: 2008 and 2013

Region	2008		2013	
	Median UIE, ug/L	Median Salt Iodine, ppm	Median UIE, ug/L	Median Salt Iodine, ppm
PHILIPPINES	132.0	5.3	168.0	5.6
Ilocos	159.0	14.0	173.0	2.7
Cagayan	133.0	13.4	223.0	8.0
Central Luzon	191.0	1.2	103.0	0.0
CALABARZON	170.0	4.9	236.0	10.9
MIMAROPA	115.0	2.2	136.0	2.8
Bicol	135.0	8.3	150.0	5.0
Western Visayas	117.0	8.1	125.0	4.5
Central Visayas	119.0	5.2	166.0	7.7
Eastern Visayas	83.0	7.9	161.0	11.4
Zamboanga Peninsula	84.0	1.1	68.0	0.0
Northern Mindanao	90.0	4.3	121.0	6.7
Davao	68.0	5.2	122.0	6.9
SOCCSKSARGEN	109.0	5.8	137.0	5.1
NCR	202.0	5.1	220.0	11.6
CAR	158.0	5.4	123.0	12.0
ARMM	101.0	10.4	128.0	4.0
CARAGA	85.0	1.9	128.0	6.6

*

Source: 2013 National Nutrition Survey, by the Food and Nutrition Research Institute
Urinary Iodine concentration for determining iodine status in population.

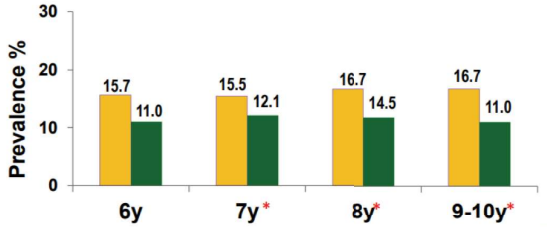
Median UIE level among school children (6-10 years old) by single age: Philippines, 2013 vs 2018



*significant (p-value<0.05)

Department of Science and Technology
FOOD AND NUTRITION RESEARCH INSTITUTE
DOST-FNRI

Prevalence of IDD among school children (6-10 years old) by single age: Philippines, 2013 vs 2018



*significant (p-value<0.05)

Department of Science and Technology
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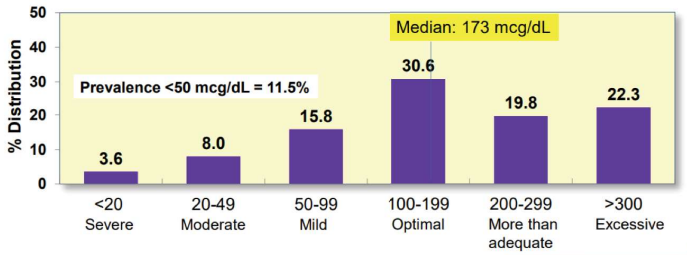
DOST-FNRI

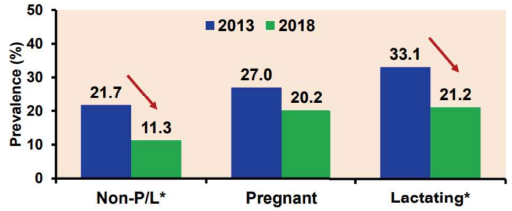
*

Percent distribution of UIE levels among adolescents, >10-12 years old by sex: Philippines, 2018



Department of Science and Technology
FOOD AND NUTRITION RESEARCH INSTITUTE
DOST-FNRI

Prevalence of Iodine Deficiency Disorder among women of reproductive age, 15-49 years old: Philippines, 2013 & 2018



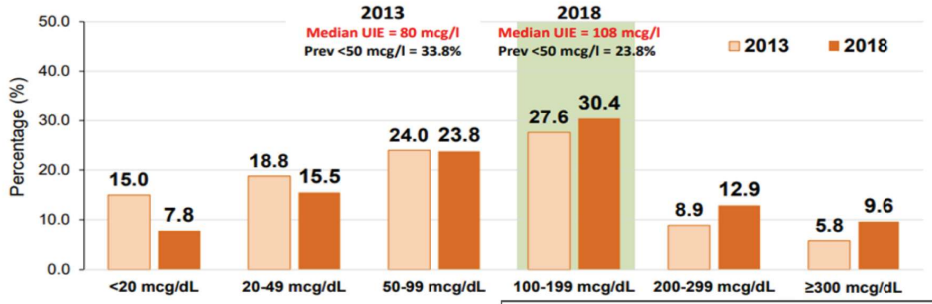
*Significantly different at 5% Level of significance

Department of Science and Technology
FOOD AND NUTRITION RESEARCH INSTITUTE
DOST-FNRI

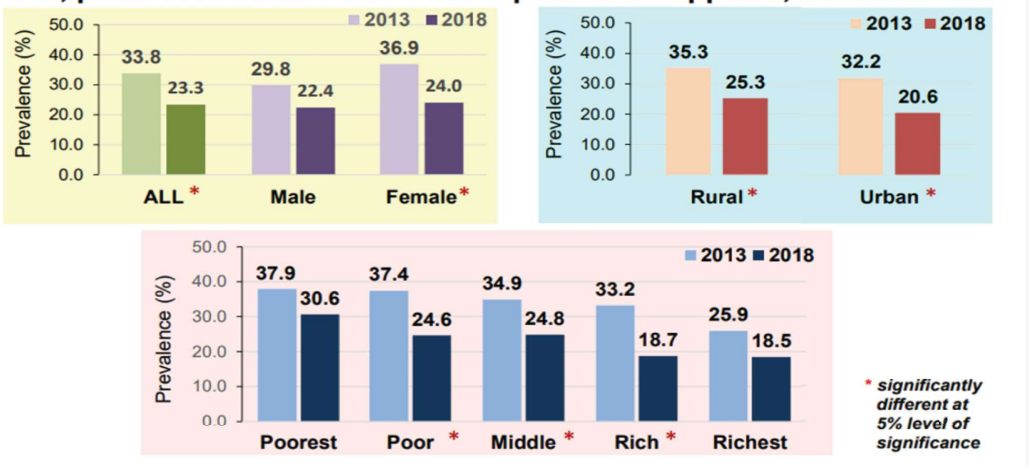
*

Source: 2018 National Nutrition Survey by the DOST-Food and Nutrition Research Institute

Percent distribution of UIE values among the Elderly, 60 years old and above: Philippines, 2013 vs 2018



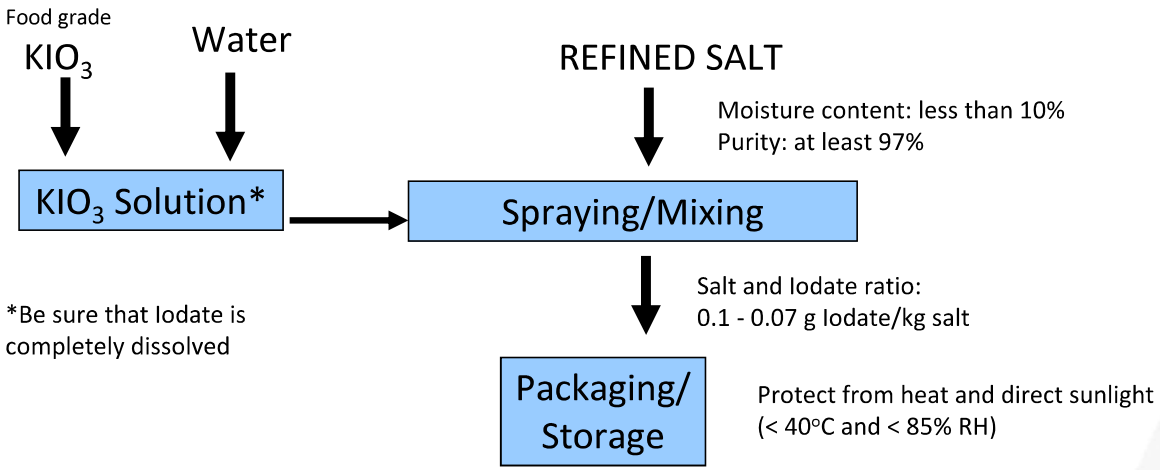
Iodine Deficiency Disorder among the Elderly, 60 years old and above, by sex, place of residence and wealth quintile: Philippines, 2013 vs 2018



Source: 2018 National Nutrition Survey by the DOST-Food and Nutrition Research Institute

What is Salt Iodization?

It is the process of adding iodine to salt.



Potassium Iodate, KIO_3

Fortificant must conform to the following specifications:

Description	Food grade, white, odorless
Purity	Min 99.0% Max 101.0% after drying
Heavy metals as Lead (Pb)	Max 10.0 ppm
Chlorate	Passes test, limit about 0.01%
Iodide	Passes test, limit about 0.002%
Moisture	Max 0.5%

Batch Type Iodizing Machine

Ribbon-type

Tumble mixer

Rotary drum-type

Quality Control

Spot Test/Rapid Test Kit (RTK)

- Detects the presence of iodine
- Appropriate for small salt manufacturers

Titration Method

- Quantitative chemical testing for the presence of iodine in salt
- Requires certain degree of analytical skills and funds to maintain a laboratory

WYD Iodine Checker

- Most appropriately used to measure the iodine level in salt at the point of production
  - For quantitative monitoring purposes

WYD Iodine Checker Description of parts/accessories and functions

WYD Iodine Checker: Function and Properties

- Measures the iodine level (ppm) in salt.
- Spectrophotometer with LED read out.
- For quantitative monitoring purposes.

WYD Iodine Checker: Technical Specifications

Stability:	Drift less than 0. 3 ppm (mg/kg) in 10 minutes
	Measurement range: Linear Between 5 and 90 ppm (mg/kg)
Readout:	0.1 ppm (mg/kg)
Accuracy:	Analytical error is less than 2 ppm (mg/kg)
Precision:	Fluctuation is less than 2 % - at the concentration of 50 ppm (mg/kg)

WYD Iodine Checker: Configuration

LED Readout

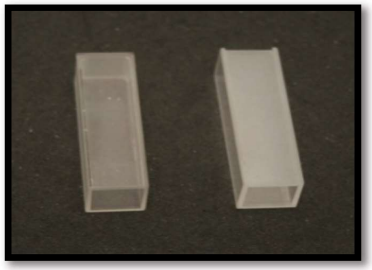
Zero Auto Calibration Key

Cell Chamber

Calibration Keys

WYD Iodine Checker: Accessories and Function of Parts

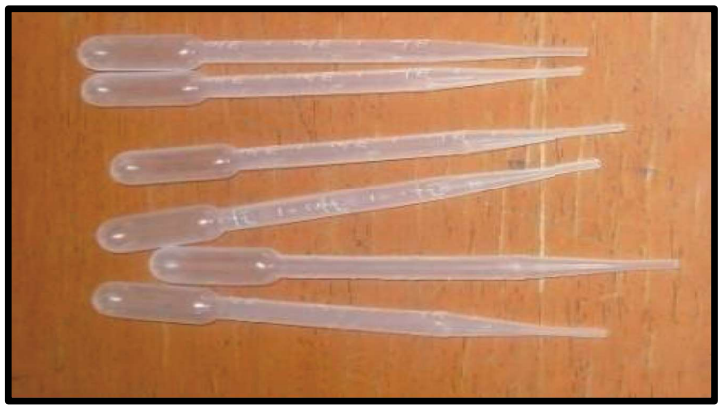
Test tubes:
For solution preparation



Cells:
For iodine level
determination

Gray glass:
For WYD calibration
without standard solution

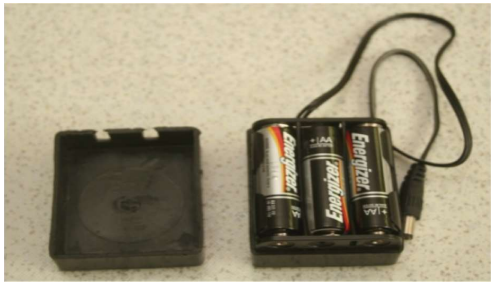
WYD Iodine Checker: Accessories and Function of Parts



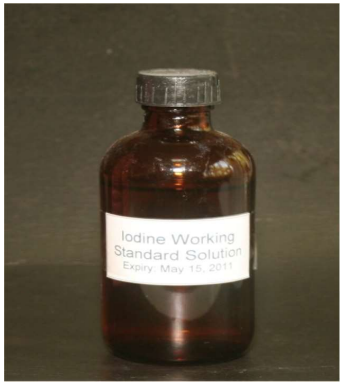
Plastic Pipets: (3 ml capacity)
For transferring solutions or liquids.

Plastic Scoop:
For sampling or weighing of salt.

WYD Iodine Checker: Accessories and Function of Parts



Battery Holder:
Use in the absence of power supply

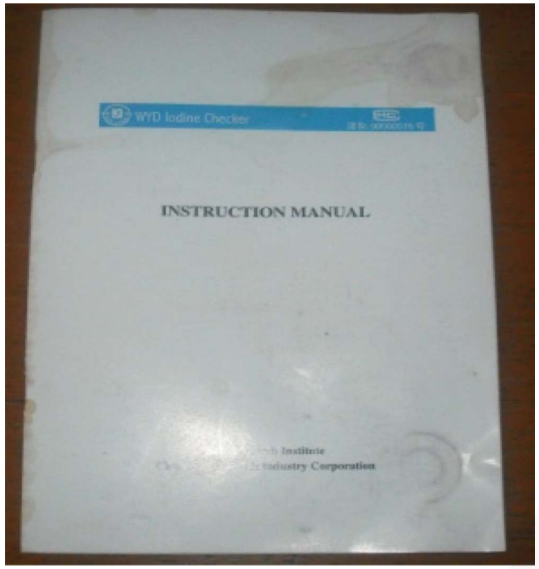


Iodine working standard solution:
For WYD Calibration

Solution A and B:
For WYD calibration and iodine testing

WYD Iodine Checker: Other Accessories

Brochure



Manual

Checking the WYD Iodine Checker Functionality

1. Light source

Insert a piece of paper
into the Sample Cell Chamber,
be sure there is light.

Checking the WYD Iodine Checker Functionality

2. Stability

When the digital reading is 0.0 mg/kg, the change (drift) should be less than 0.3 ppm in 10 mins.

Checking the WYD Iodine Checker Functionality

3. Zero Autocalibration

Press the zero auto calibration key ◙ , 100.00 appears on the LED readout display, then 0.0 appears and become stable.

Checking the WYD Iodine Checker Functionality

4. **Calibration**

Insert gray glass and calibrate the iodine checker

1st : Press and Hold the Δ key until the readout is not changed
(the maximum value should be ≥70.0)

2nd: Press and Hold the ∇ key until the read out is not changed
(the minimum value should be ≤40.0)

WYD Iodine Checker Calibration

Objective:

To provide the correct method for the calibration of WYD Iodine Checker to enable it to accurately measure the iodine level in salt.

WYD Iodine Checker Calibration

1. Zero (ppm) Calibration	Both calibrations need to be conducted to complete the WYD Iodine Checker calibration.
2. 50 ppm Calibration Using Standard Solution	
3. Calibration of WYD Using Gray Glass (Alternative to using standard solution)	The zero calibration is conducted first before this. When both are conducted the WYD Iodine Checker calibration is complete. Note: Before using the gray glass for WYD calibration, its equivalent ppm valued should be determined – see Gray Glass Calibration Procedure.

WYD Iodine Checker: Zero Calibration

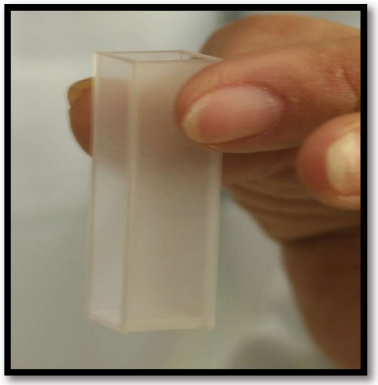
1. Plug-in the WYD and warm up for at least 10 minutes.

WYD Iodine Checker: Zero Calibration

2 . Get a clean empty cell; the cell has two clear sides and two opaque
(unclear) sides.
3. Wash the cell with purified water twice and throw the washing.

clear side

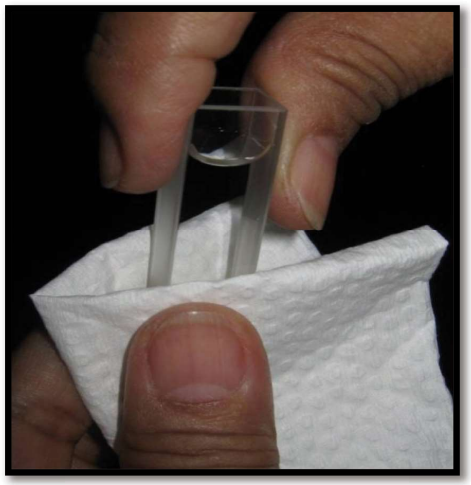
opaque side



Note: Hold the cell on the opaque sides.

WYD Iodine Checker: Zero Calibration

4. Fill the cell with purified water up to ¾ level.
5. Wipe the external parts of the cell using lintless paper.



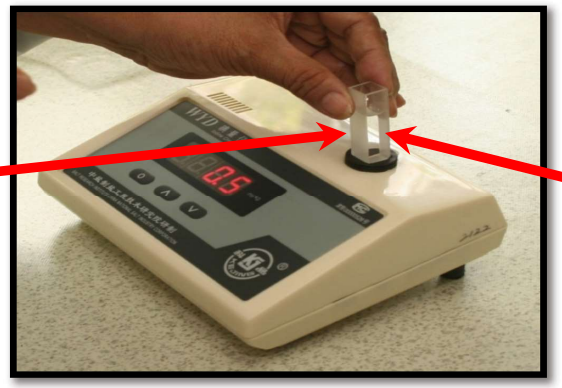
Note: Use lintless paper like paper towel. (Do not use any paper or tissue papers) to prevent scratching and leaving lints (fibers from the tissue paper) on the surface of the cell.

WYD Iodine Checker: Zero Calibration

6. Open the cover of the cell chamber.

WYD Iodine Checker: Zero Calibration

7. Place the cell with water in the cell chamber, with the opaque side facing the analyst and the clear side on the left and right sides of the WYD Iodine Checker.



WYD Iodine Checker: Zero Calibration

8. Close the cell chamber.

WYD Iodine Checker: Zero Calibration

9. Press the auto-calibration key, notice that after pressing “100.0” then “0.0” appears on the display.

WYD Iodine Checker: Zero Calibration

10. Remove the cell and replace the cover right away.

Note: Always cover the cell chamber to avoid light and dust from entering the cell chamber.

WYD Iodine Checker: 50ppm Calibration Using Standard Solution

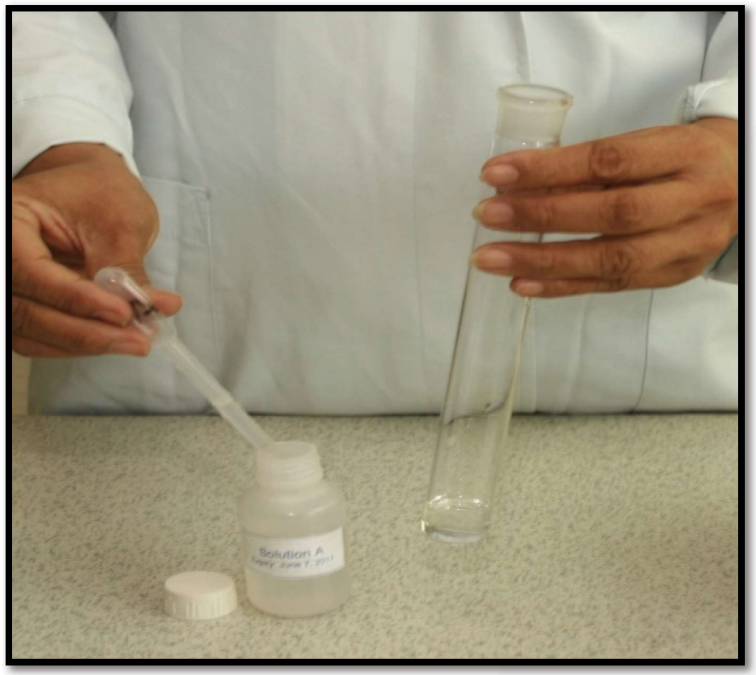
1. Measure 5.0 ml of iodine working standard solution.

WYD Iodine Checker: 50ppm Calibration Using Standard Solution

2. Transfer the standard solution into a 50 ml test tube.

WYD Iodine Checker: 50ppm Calibration Using Standard Solution

3. Measure 2.0 ml of solution A using a pipet marked A.



WYD Iodine Checker: 50ppm Calibration Using Standard Solution

4. Transfer solution A to the test tube.

WYD Iodine Checker: 50ppm Calibration Using Standard Solution

5. Get another plastic pipet marked B; measure 2.0 ml of Solution B.

50 ppm Calibration Using Standard Solution

5. Get another plastic pipet marked B; measure 2.0 ml of Solution B.

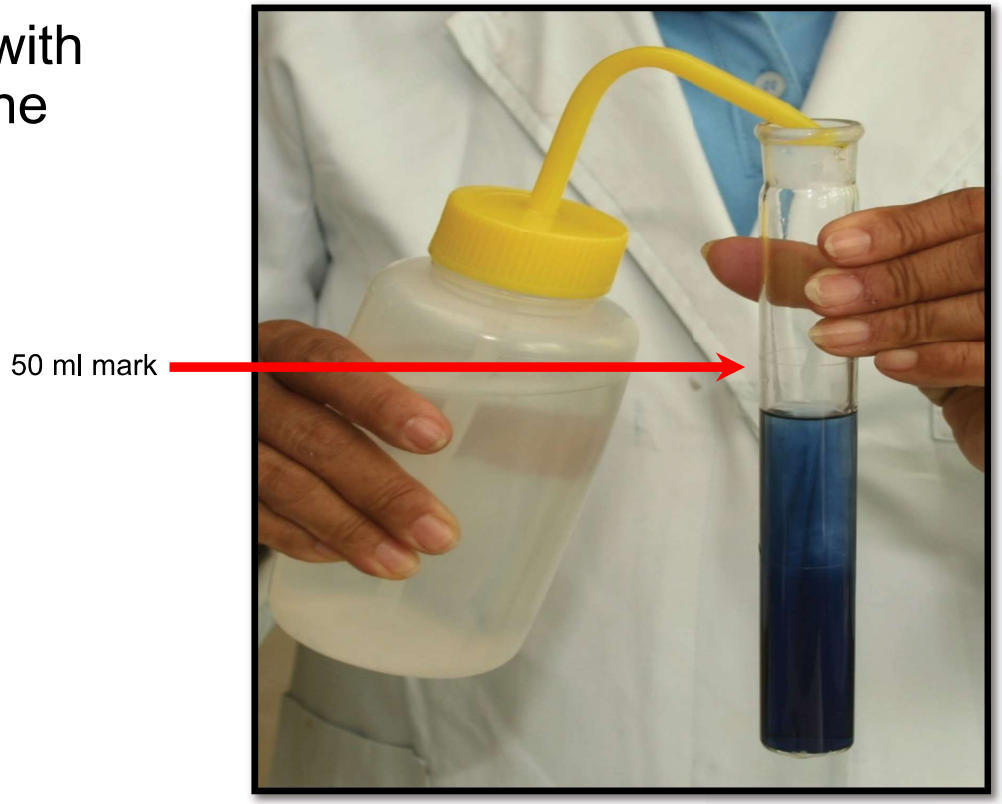
WYD Iodine Checker: 50ppm Calibration Using Standard Solution

6. Add solution B to the test tube.

Note:
The solution will turn to blue if iodine is present.

WYD Iodine Checker: 50ppm Calibration Using Standard Solution

7. Fill the test tube with purified water to the 50 ml mark.



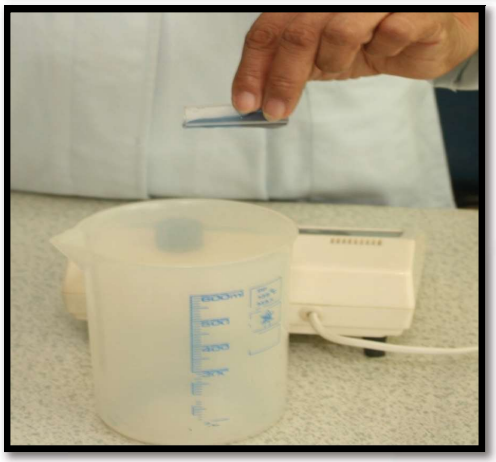
WYD Iodine Checker: 50ppm Calibration Using Standard Solution

8. Close the test tube and shake thoroughly until a **uniform** color is observed in the solution.

Note:
The prepared solution is equivalent to an iodine concentration of 50 ppm.

WYD Iodine Checker: 50ppm Calibration Using Standard Solution

9. Get an empty cell and wash with a small amount of the prepared solution. Discard (throw) the washing.



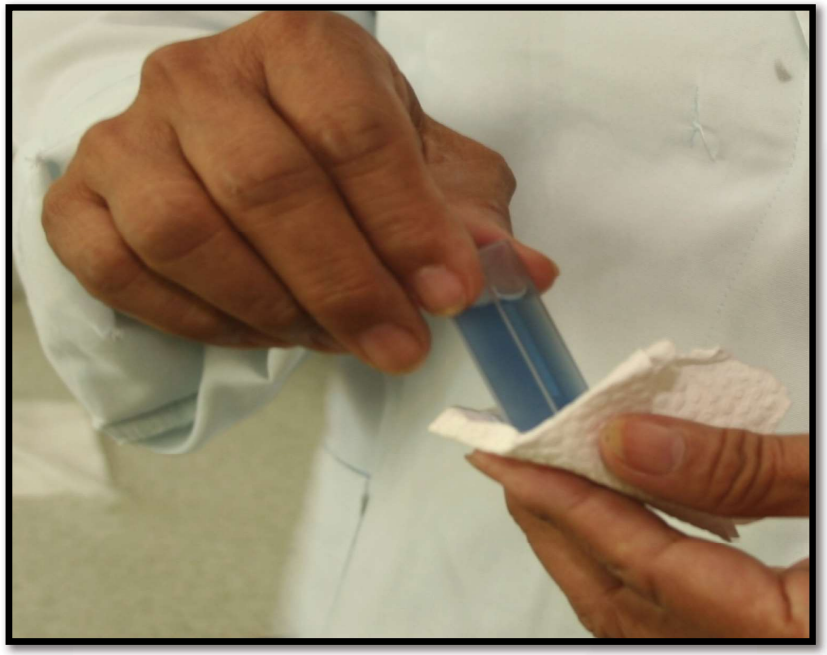
Note: Hold the cell on the opaque sides.

WYD Iodine Checker: 50ppm Calibration Using Standard Solution

10. Fill the cell with the prepared solution to ¾ level.

WYD Iodine Checker: 50ppm Calibration Using Standard Solution

11. Wipe the external parts of the cell using a paper towel.



Note: Avoid using any paper or tissue papers to prevent scratching and leaving lints (fibers from the tissue paper) on the surface of the cell.

WYD Iodine Checker: 50ppm Calibration Using Standard Solution

12. Place the cell in the cell holder with the opaque side facing the analyst and the clear side on the left and right sides of WYD Iodine Checker.

WYD Iodine Checker: 50ppm Calibration Using Standard Solution

13. Close the cell chamber.

WYD Iodine Checker: 50ppm Calibration Using Standard Solution

14. Using the Δ and ∇ keys, adjust the reading until 50.0 appears on the LED display.

WYD Iodine Checker: 50ppm Calibration Using Standard Solution

15. Remove the cell and replace the cover right away.

Note: Always cover the cell chamber to avoid light and dust from entering the cell chamber.

WYD Iodine Checker: Gray Glass Calibration

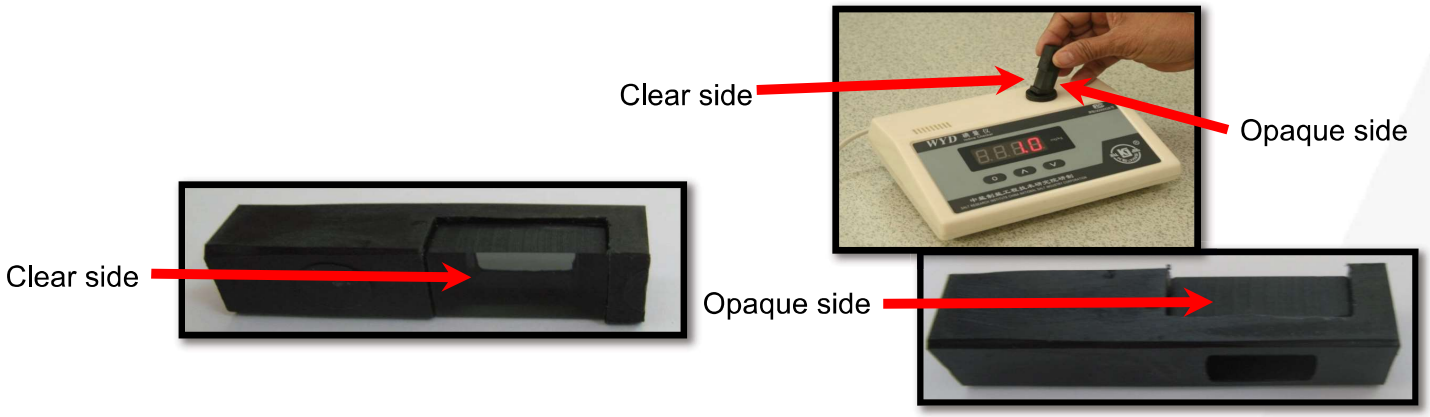
1. Plug in the WYD and warm up for at least 10 minutes.

WYD Iodine Checker: Gray Glass Calibration

2. Repeat the Zero Calibration Procedure (refer to complete procedure in earlier slides).

WYD Iodine Checker: Gray Glass Calibration

3. Insert the gray glass in the cell holder, with the solid side facing the analyst and the opaque side on the left and right sides of WYD Iodine Checker.



WYD Iodine Checker: Gray Glass Calibration

4. Cover the cell holder and note the LED display reading.

WYD Iodine Checker: Gray Glass Calibration

5. Refer to the WYD calibration record; find the latest reading of the gray glass.

   If the LED reading is different from the record, adjust the LED display using the Δ and ∇ keys, until the LED reading is the same as the record.

WYD GRAY GLASS CALIBRATION	
Equipment Name	WYD Iodine Checker
Serial No.	
Date Acquired	
Factory	

Date Performed	ppm Reading	Performed By	Remarks
Feb. 7, 2015	50		

WYD Iodine Checker: Gray Glass Calibration

7. Remove the cell and replace the cover right away.

Note: Always cover the cell chamber to avoid light and dust from entering the cell chamber.

Measurement of Iodine Level in Salt Using the WYD Iodine Checker

Steps for Iodine Analysis

A. Weighing of sample
B. Preparation of salt solution
C. Iodine determination

Reminder: Before iodine analysis, conduct zero calibration and gray glass calibration on the WYD

A. Weighing of Salt Sample

1. Turn on the digital scale.

2. Place a clean paper on top of the pan.

3. Press “Tare” to bring the reading to Zero.

A. Weighing of Salt Sample

4. Mix the salt sample well.

5. Get salt sample using a scoop.

6. Weigh exactly 1.0 gram of salt using the digital scale.

B. Preparation of Salt Solution

1. Transfer the 1.0 gram salt sample to a 50 ml capacity test tube.

B. Preparation of Salt Solution

2. Add small amount of purified water (10 -25 ml) .

B. Preparation of Salt Solution

3. Cover the test tube and shake to **completely** dissolve the salt.

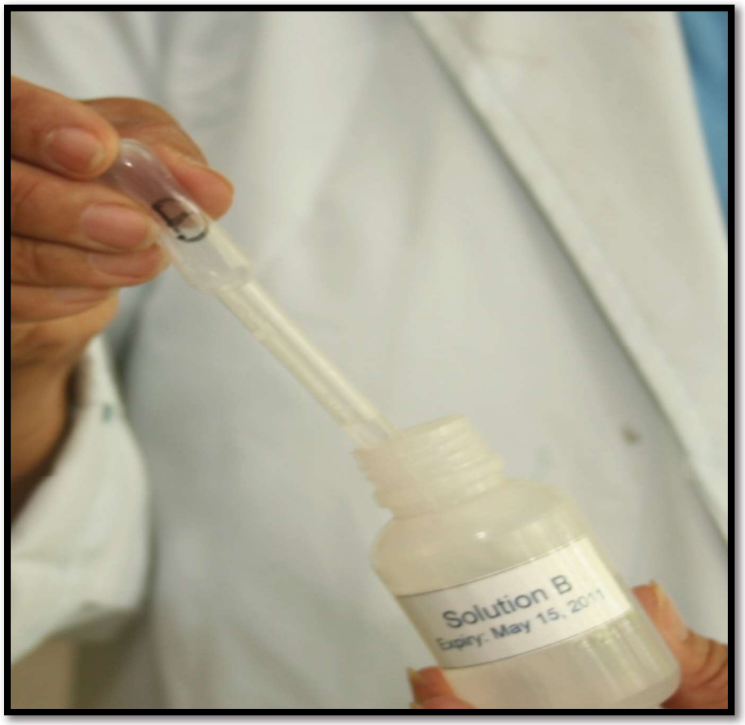
C. Iodine Determination

1. Get pipet marked A and measure 2.0 ml of Solution A.

C. Iodine Determination

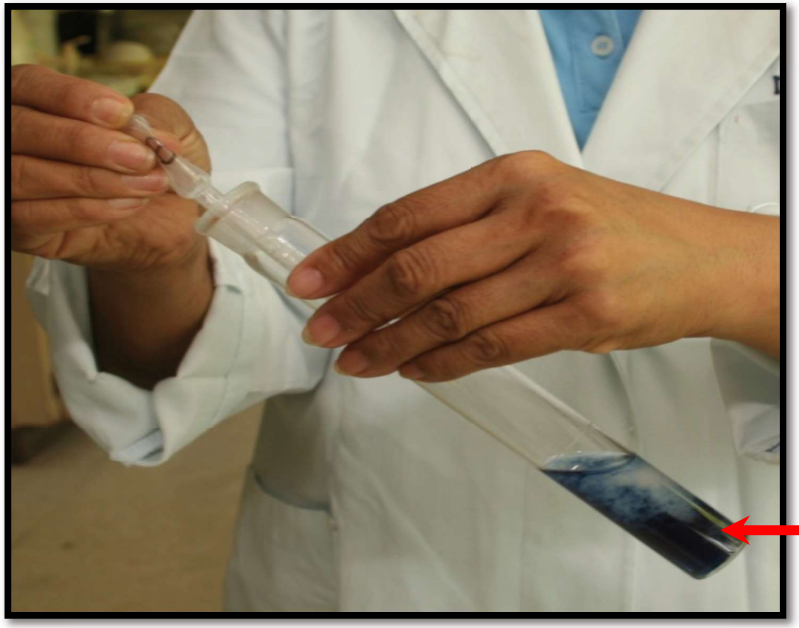
2. Add the 2.0 ml Solution A into the test tube.

C. Iodine Determination



3. Get pipet marked B and measure 2.0 ml of Solution B.

C. Iodine Determination



4. Add Solution B to the test tube.

Note:
The solution will turn to blue if Iodine is present

C. Iodine Determination

5. Shake the solution thoroughly.

6. Fill the test tube with water to the 50 ml mark.

C. Iodine Determination

7. Cover the test tube and shake thoroughly until a **uniform** color is observed.

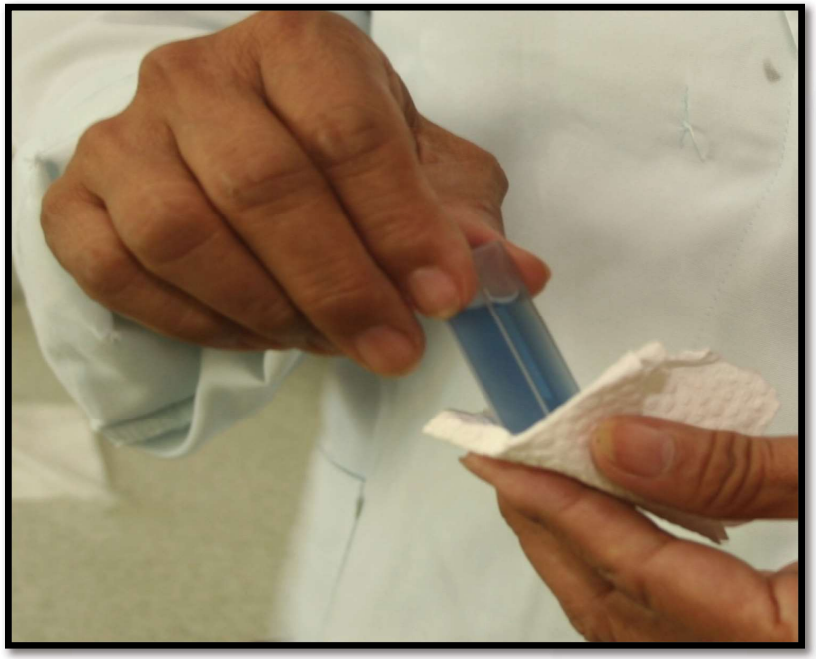
8. Get a cell, hold on the opaque side and add little amount of solution to wash the cell. Repeat washing twice.

C. Iodine Determination

9. Fill the cell with the prepared solution to ¾ Level.

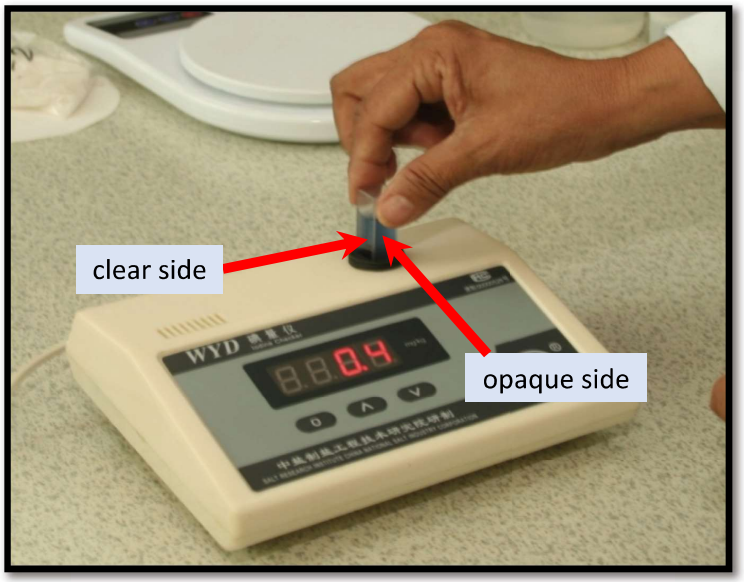
C. Iodine Determination

10. Wipe the external parts of the cell using a paper towel.



Note: Avoid using any paper or tissue papers to prevent scratching and leaving lints (fibers from the tissue paper) on the surface of the cell.

C. Iodine Determination



11. Place the cell in the cell chamber, with the opaque side facing the analyst and the clear side on the left and right sides of WYD Iodine Checker.

C. Iodine Determination

12. Close the cell chamber.

Cell Chamber Cover

13. Read the iodine level (in ppm) on the LED display and record.

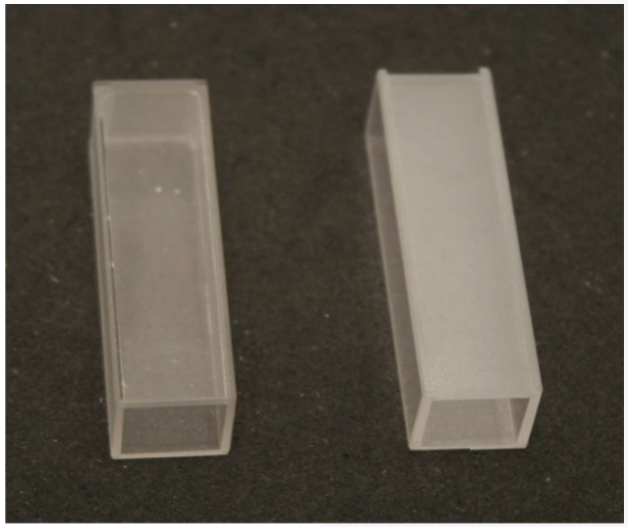
C. Iodine Determination

14. Remove the cell and replace the cover right away.

Note: Always cover the cell chamber to avoid light and dust from entering the cell chamber.

WYD Iodine Checker Cell Maintenance

Cells must be kept clean.
Wash the inner and outer part of cell using purified water, ethyl alcohol or diluted acetic acid (or white vinegar).
Soak overnight to remove accumulated residue.



NOTE:

a) Do not use soap or detergent to avoid scratching the cell.
b) Dirty cell may contaminate the cell chamber and gray glass causing analytical error.

WYD Iodine Checker Maintenance

1. Install in cool and dry place with good ventilation.

NOTE: If the unit is located in damp environment for long period, its stability would be reduced and drift would become high. In this case, prolong 20 to 30 minutes warm up time.

WYD Iodine Checker Maintenance

2. Clean the WYD after use to ensure that it is free from salt, dust and liquid.

NOTE: If the WYD is located in damp environment for a long period, its stability would be reduced and drift would become high. In this case prolong 20 to 30 minutes warm up time.

WYD Iodine Checker Troubleshooting

Symptom	Cause	Remedy
1. No signal reading on LED	· Power cable, disconnected	· Check and connect the power cable.
2. The digital reading fluctuates much	· Too short warm-up time or too high vibration	· Warm up instrument · Select proper place
3. The digital reading drifts much	· Low power voltage (when DC power is supplied)	· Replace the battery

WYD Iodine Checker Troubleshooting

Symptom	Cause	Remedy
4. No digital reading when the sample is inserted into the cell holder.	· The instrument is malfunctioning	· Press Λ or V key. If the problem exists, disconnect the power cable and reconnect it.
5. The reading drifts or the measuring result is wrong or the WYD Iodine Checker is not responding.	· The solution spilled in the Sample Cell Chamber and the Sensor is destroyed, or the Sensor is in bad contact.	· Clean out the Sample Cell Chamber immediately and dry it or change the Sensor or check the transmission circuit of the Sensor.

Standard for Iodized Salt

Purity Requirements

- Moisture, max: 4% for refined
  7% for unrefined
- NaCl, min: 97% (dry basis)
- Calcium & Magnesium, max: 2%
- Water Insolubles, max: 0.2%
- Arsenic as As, max: 05 mg/kg
- Cadmium as Cd, max: 0.5 mg/kg
- Lead as Pb, max: 2.1 mg/kg
- Mercury as Hg, max: 0.1 mg/kg

Standard for Iodized Salt

Iodine Levels

- 30 to 70 mg/kg

Naturally present secondary products and contaminants in raw salt

- Calcium, potassium, magnessium, sodium sulphates, carbonates, bromides, and of calcium, potassium and magnesium chlorides

Food additives

- KIO_3 and KI (food-grade quality and shall conform to JECFA or Food Chemical Codex)

Allowable Iodine Content of Salt

- Warehouse – 30 to 70 ppm
- Household – 15 ppm

Republic of the Philippines
Department of Health
FOOD AND DRUG ADMINISTRATION

05 March 2013

FDA CIRCULAR
No. 2013-007

SUBJECT: **Amendment of Bureau Circular No. 2007 – 009 on the Standard Iodine Level of Salts for Strict Compliance of Iodized Salt Manufacturers or Processors**

II. AMENDMENT

All manufacturers or processors of food-grade iodized salt, whether bulk or retail, imported or local, across the nationwide distribution channels, are hereby directed to implement and ensure salt iodine content of 30 to 70 ppm (mg/Kg), amending the standard of 20 to 70 ppm (mg/Kg) as specified in Bureau Circular No. 2007–009 dated 10 October 2007.

Republic of the Philippines
Department of Health
FOOD AND DRUG ADMINISTRATION

16 October 2013

FDA MEMORANDUM CIRCULAR
No. 2013-042

To : **Manufacturers, Importers, Wholesalers, Repackers and Distributors of Iodized Salt, and Other Concerned Parties**

From : **KENNETH Y. HARTIGAN-GO, MD**
Acting Director General

Subject` : **Guidelines For Salt Manufacturers, Importers, Wholesalers, Repackers and Distributors To Ensure Adequate Iodization Of Iodized Salt, And For Other Purposes**

1. To ensure that all salt produced, imported, sold, offered for sale or use by FDA-licensed salt establishments are consistently iodized to a level based on the provision of FDA Circular No. 2013-007 that requires 30-70 ppm (mg/Kg) iodine content in salt to ensure that at least 15 ppm level of iodized salt at the household level is met;

2. To ensure that all establishments engaged in the salt manufacture, distribution, wholesale, repacking, and importation have FDA License to Operate, which is the basis for determining if the establishment can produce or supply iodized salt in accordance with the standard adopted by FDA; and ensure that all iodized salt products have CPR; and

3. To provide food inspectors general guidelines for inspecting primary producers, repackers and other salt establishments of the salt industry to determine compliance with the ASIN Law.

Capacity Building Internal QA/QC: Pasuquin, Ilocos Norte (June 2014)

Arnulfo, Gracia, Palalay, Pama, Dhevie Kate, Gemini, Mendoza, Triple L Salt Refineries

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Thank You!