

# Food Analysis Workshop: Proficiency Testing and Reference Materials Development

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## PT Provision at DSS, Thailand



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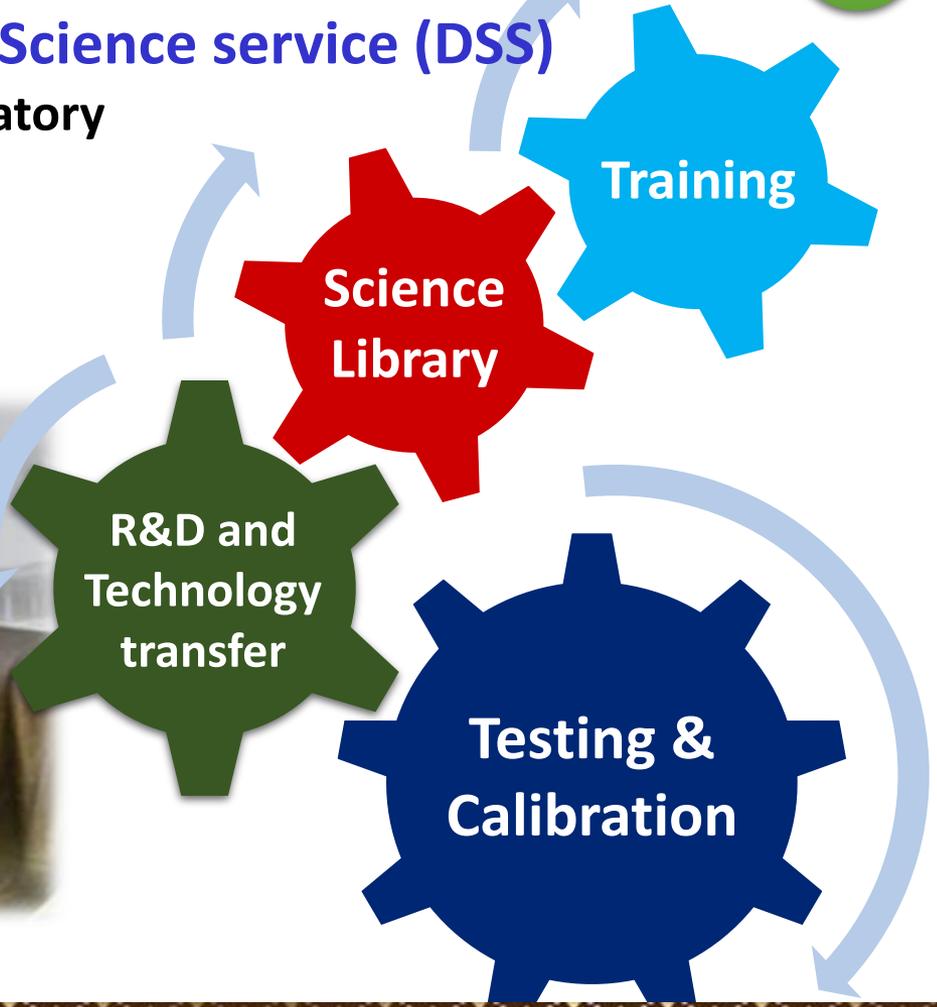
## Outline : PT Provision at DSS, Thailand

- ❖ Timeline of Center for Laboratory Proficiency Testing (CLPT)
- ❖ Development and Improvement for PT management
- ❖ ASEAN region and international activities
- ❖ CLPT activities at the present
- ❖ CLPT activities in the future

1891

# Department of Science service (DSS) ..... national laboratory

128  
Yrs



Center for Laboratory Proficiency Testing (CLPT)  
Department of Science Service(DSS), Thailand  
Rachada Hem. & Wannee Aup



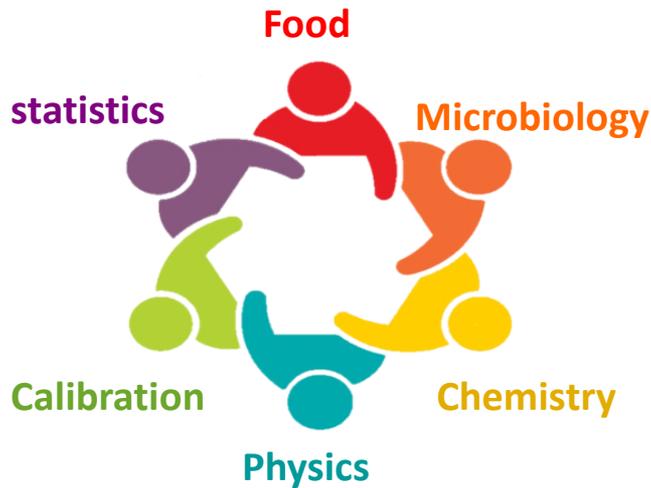
2002

Bureau of Laboratory Accreditation (BLA)



2002

## Start up Proficiency Testing Section (PTS)



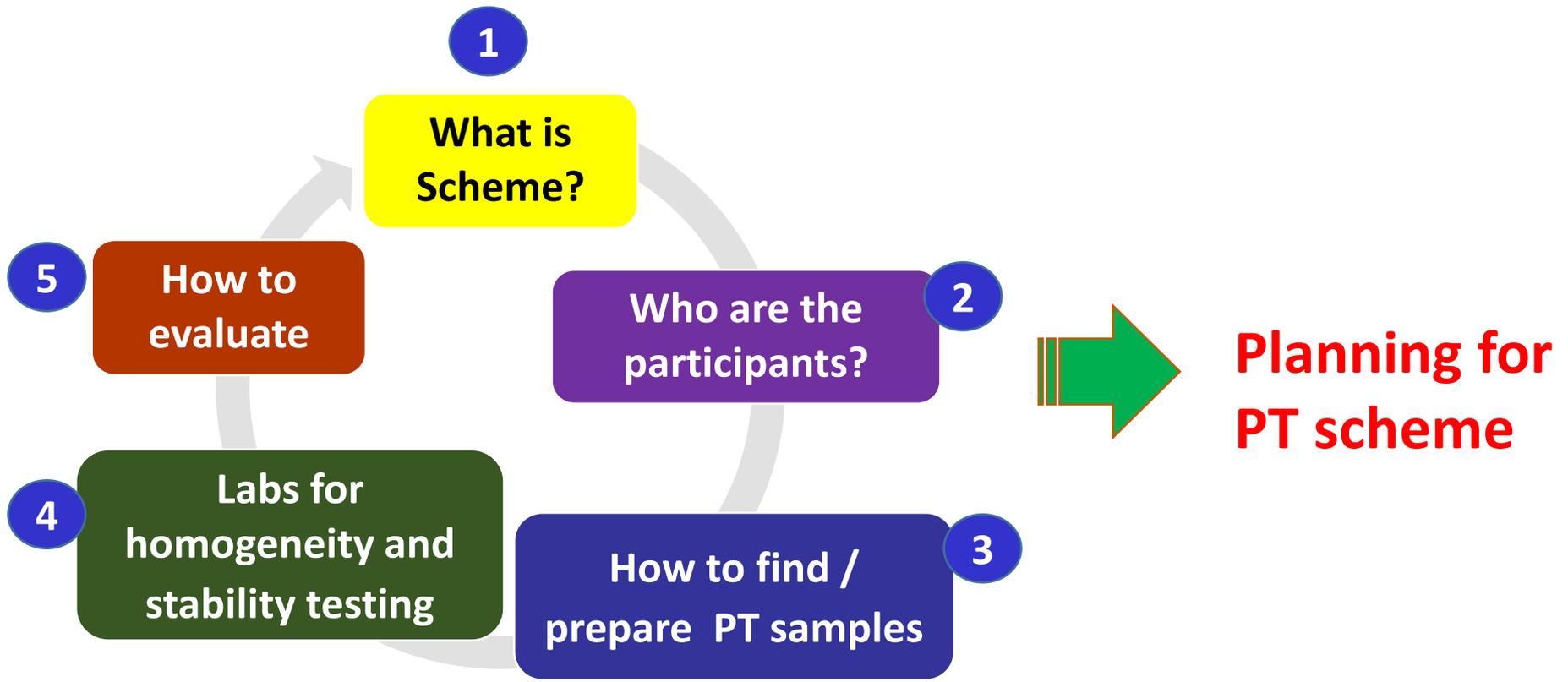
**Key factors for success:**  
Learning / Training  
/Research/Collaboration



Equipments



**2002** Start up Proficiency Testing Section (PTS)



- 1. Food field:** Proximate analysis in feeding stuffs
- 2. Chemical field:** C, Cr, Cu, Mn, Ni, P, S, and Si in low alloy and carbon steel
- 3. Environmental field:** COD in water
- 4. Calibration field:** Volumetric flask  
Volumetric pipette

241 labs from  
137 organizations in  
Thailand

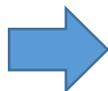


## Sample preparation: Water/Solution sample

Container



20 lits



200 lits

Weight



1,500 gms  
(1.5 kgs)

150 kgs  $\pm$   
0.0001 gm



Homogenizer

## Sample preparation: Water/Solution sample



**Automatic machine**

## Sample preparation: Solid /Granule sample Mills and Grinder



Rotor Mill



Knife Mill



Cutting Mill

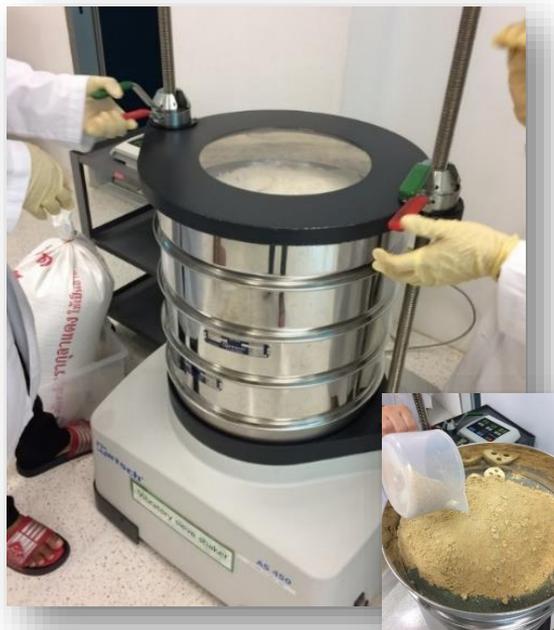


Mortar Grinder

## Sample preparation: Sieving for solid sample



Sieve shaker



Vibratory sieve shaker



Air jet sieving machine

## Sample preparation: Homogeneity for solid sample



Rotary mixing machine  
(2D motion Mixer)



88 Mixing (3D motion Mixer)

## Sample preparation: Packing and Labelling



**Vacuum Packing Machine**



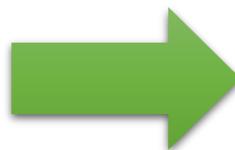
**Labelling**

2010

To promote PTS(BLA) to be CLPT(DSS)

**Proficiency Testing  
Section (PTS)**

Bureau of Laboratory  
Accreditation (BLA)



**Center for Laboratory  
Proficiency Testing (CLPT)**

Department of Science  
Service(DSS)

**Center for Laboratory  
Proficiency Testing (CLPT)**

Food

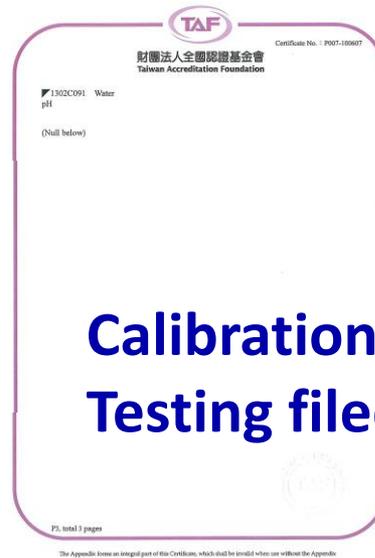
Environment

Chemistry

Physics &  
Calibration

2010

Accredited PTP comply with **ISO/IEC 43-1: 1997**



**Calibration field: 5 items**  
**Testing filed: 5 items**

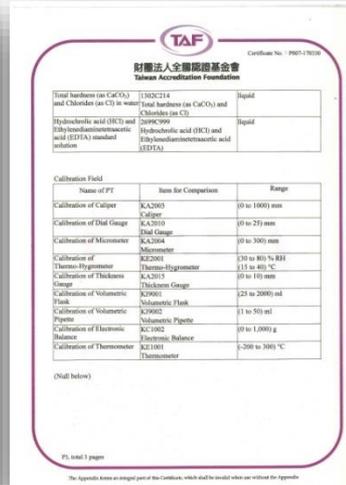
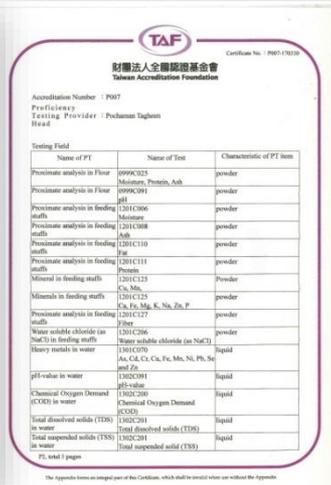
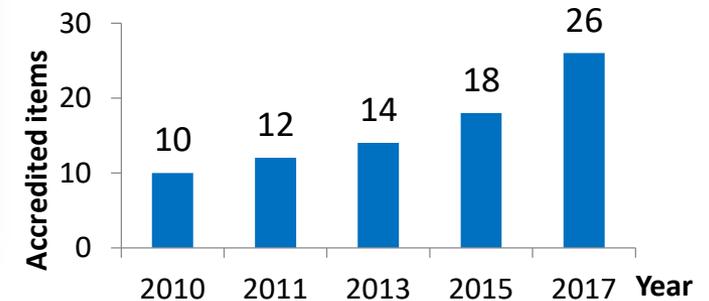
**From Taiwan Foundation Accreditation (TAF)**

2015

Accredited PTP comply with **ISO/IEC 17043: 2010**

Total accredited 26 items

- Calibration field: 9 items
- Testing field: 17 items



Center for Laboratory Proficiency Testing (CLPT)  
Department of Science Service(DSS), Thailand  
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2008

To provide PT program for **APLAC/PTB Proficiency Testing Workshop**

## pH-value in water (45 labs from 17 economies)

Economy	No. of labs	Economy	No. of labs	Economy	No. of labs
Australia	1	Hong Kong	3	Singapore	3
Bangladesh	3	Korea	2	Sri Lanka	3
Bhutan	1	Malaysia	3	Taiwan	3
Brunei	3	Mongolia	2	Thailand	3
Cambodia	3	Papua New Guinea	2	Viet Nam	2
China	3	Philippine	3		

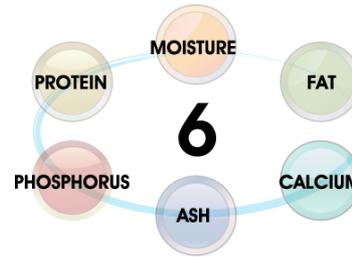
# PTS-DSS: ASEAN region and international activities

**2009**

To provide PT : **APLAC T060**

**27 laboratories (7 economies)**

**Moisture, Protein, Fat, Ash, Calcium, Phosphorus in feeding stuffs**



Economy	No. of labs	Economy	No. of labs
USA	2	Singapore	2
Japan	4	Thailand	12
Korea	1	Vietnam	4
New Zealand	2		



# CLPT: ASEAN region and international activities

To provide ASEAN PT for Food Contact Material (FCM) Testing



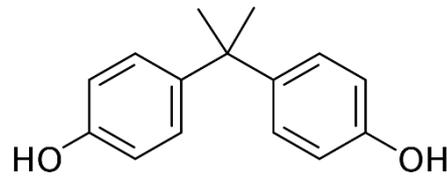
The screenshot shows the website for the Center for ASEAN Food Contact Materials Testing. The header includes the center's name, a search bar, and navigation links: HOME, SERVICES, LEGISLATION/SPECIFICATION, NETWORK, RM/CRM, INFORMATION, ABOUT US, and CONTACT US. A dropdown menu under SERVICES lists: Testing Services, Test Method, Laboratory Proficiency Testing, Training, and Laboratory Instruments. The main banner features a scientist in a lab coat and safety glasses working with laboratory equipment, with the text "ศูนย์ทดสอบวัสดุสัมผัสอาหารของอาเซียน" and "Center for ASEAN Food Contact Materials Testing". Below the banner, there are two news items: "Seminar on the Updating the Legislation on Food Contact Materials" (Fri - 01 Apr) and "ASEAN Food Reference Laboratory for food contact materials (AFRL)" (Tue - 14 Oct). A sidebar on the right promotes an app for food safety, available on the App Store and Android.

# CLPT: ASEAN region and international activities

2014

To provide **ASEAN PT for Food Contact Material Testing**

**APMP.QM-P026: Bisphenol A in canned tuna**



Singapore	1
Switzerland	1
Vietnam	1
Thailand	2
Indonesia	1



# CLPT: ASEAN region and international activities

## To provide ASEAN PT for Food Contact Material (FCM) Testing

Year	Schemes
2015	Cd and Pb released from <b>ceramic ware</b> Cd and Pb in <b>plastic</b>
2016	Melamine in food simulant (3% acetic acid) Heavy metals (Ba, Co, Cu, Fe, Ge, Li, Mn, Sb, Zn) in food simulant
2017	Bisphenol A in food simulant Cd and Pb in plastic
2018	Formaldehyde in food simulant Heavy metals (Ba, Co, Cu, Fe, Ge, Li, Mn, Sb, Zn) in food simulant
2019	Bisphenol A in food simulant Plastic film: Overall Migration into 3% (w/v) acetic acid

**TWO**  
schemes/year



# CLPT: ASEAN region and international activities

As the trainee



**APLAC/PTB Proficiency Testing Workshop  
(3 Times : Feb 2007, Sep 2007 ,Sep 2009)**

# CLPT: ASEAN region and international activities



As the trainer

**APLAC/PTB workshop for  
“ Enhanced Training of PT Exports “  
( 3 Times: Aug 2011, May 2012, Feb 2013 )**



**Center for Laboratory Proficiency Testing (CLPT)  
Department of Science Service(DSS), Thailand  
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# CLPT: ASEAN region and international activities



Asia-Pacific  
Economic Cooperation

TENTATIVE PROGRAMME OF APEC WORKSHOP ON CAPACITY  
BUILDING FOR PROVIDING **MEDICAL EXTERNAL QUALITY  
ASSURANCE (EQA) PROGRAMME COMPLYING WITH ISO/IEC 17043**

**27 - 29 October 2015, Kuala Lumpur, Malaysia**



# CLPT: ASEAN region and international activities

## Seminar for participants



# CLPT: ASEAN region and international activities

## Training at Chemical Proficiency Testing ( CPT ) National Measurement Institute, Australia( NMIA) 15 Aug - 15 Sep 2011



### Sample preparation

#### Pesticides in fruit and vegetables

##### Green bean

Carbendazim, Dimethoate, Methomyl, Profenofos



measurement.gov.au



### Sample preparation

#### Pesticides in fruit & vegetables

##### ❖ Tomato

Dimethoate, Methomyl,  $\alpha$ -Cypermethrin, Endosulfan sulfate, Dicofol



measurement.gov.au

## Training at Chemical Proficiency Testing ( CPT ) National Measurement Institute, Australia( NMIA) 15 Aug - 15 Sep 2011

Australian Government  
National Measurement Institute



### Sample preparation

#### Metals and nutrients in Pineapple

Metals: As, Cd, Cu, Hg,  
Pb, Sn, Zn

Nutrients: Ca, Fe, K, Mg,  
Mn, P



### Folic acid in flour



measurement.gov.au

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# CLPT at the present

## PTP-DSS : All PT schemes (since 2004 until now)

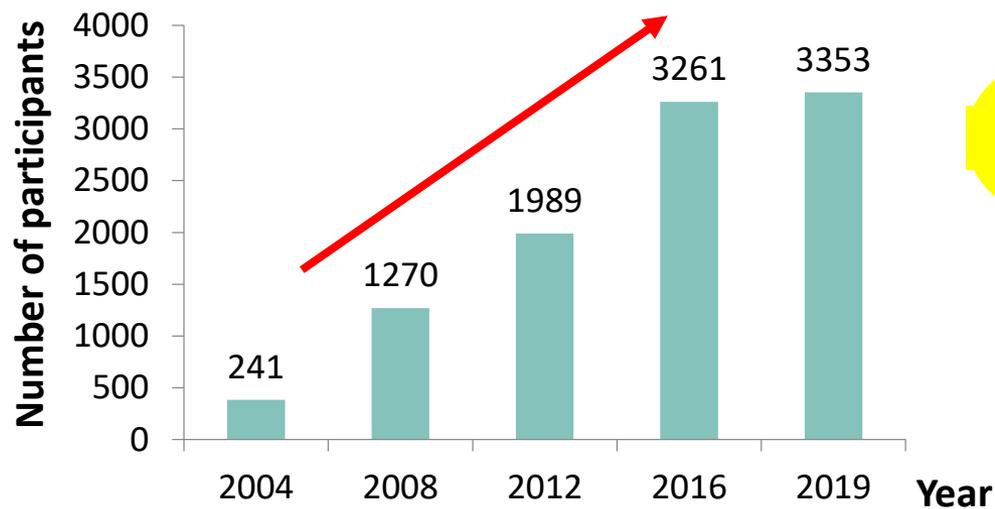
Section	Number of PT schemes
Food	23
Environment	16
Chemistry	15
Physics	8
Calibration	22
<b>Total</b>	<b>84</b>

**About 40  
schemes/year**



# CLPT at the present

## Our participants



Asia

Australia

Europe

More than  
1709 companies

## Laboratory for sample preparation



## Sample preparation



## PT samples/ Artifacts



# CLPT activities at the present

## QC sample example

**Solution:** pH-value /COD /TDS / TSS / TKN / Heavy metals / Total hardness (as CaCO<sub>3</sub>) and Chlorides (as Cl) ect.

**Feeding stuffs :** Moisture, Protein, Crude fat, Crude fiber and Ash

**Milk powder:** Moisture, Protein, Fat and Ash

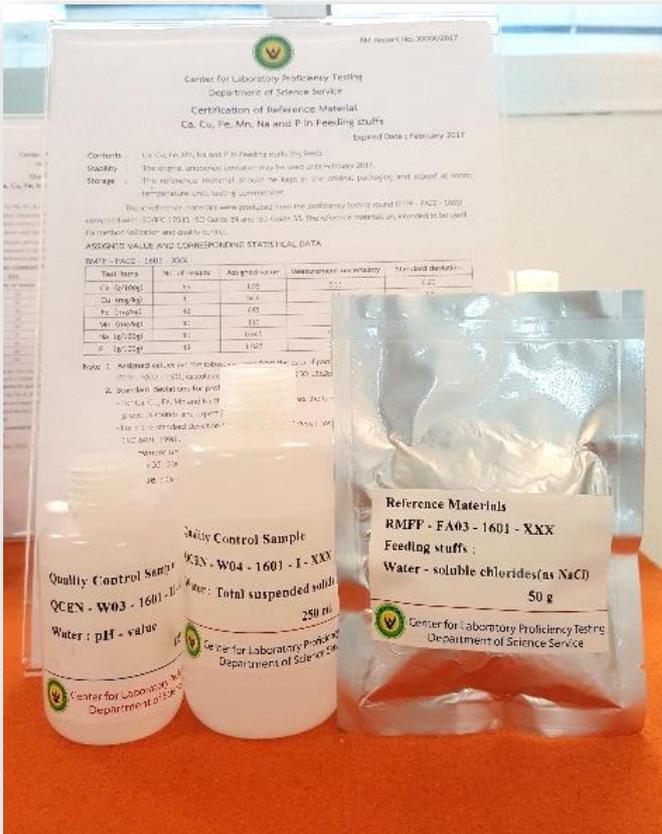
**Block rubber:** Dirt, Ash, Nitrogen, Volatile matter

**Carbon and low alloy steel :** C, Cr, Cu, Mn, Ni, P, S

## RM example

**Feeding stuffs :** Moisture and Protein / Minerals (Ca, Fe, Mg, K, Na, Zn and P) / Water soluble chlorides (NaCl)

**Starch :** Aerobic plate count



# CLPT activities in the future

1. To provide new PT schemes every year
2. To expand the PT scheme to be accredited ISO/IEC 17043: 2010
3. To promote the candidate RM items to be certified as CRMs complied with ISO 17034: 2016



## Key factors for success:

- ✓ Policy, Goal and Strategy of Organization
- ✓ Human resources (Skill, Experience , Teamwork, Engagement or Passion)
- ✓ Collaboration or Network

# PT Provision at DSS, Thailand

## Contact us:



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