

# THE ADHESIVE MARKET IN JAPAN

26<sup>th</sup> Sep. 2013

**Takayuki Nogawa**

President of JAPAN ADHESIVE INDUSTRY

ASSOCIATION ( JAIA )

## Contents

1. Activity of JAIA
2. Statistics of the Japanese adhesive market
3. JAIA's efforts in the environmental and safety

# Japan Adhesive Industry Association JAIA

- Established in June 1966
- Regular Members : 91 adhesive manufacturers
- Associate Members : 36 suppliers (Raw materials, equipment, etc.)

## 7 Key Words

**Environment**

**Safety**

**Quality**

**Standard**

**Information**

**Education**

**Symbiosis**

## Main Activities of JAIA

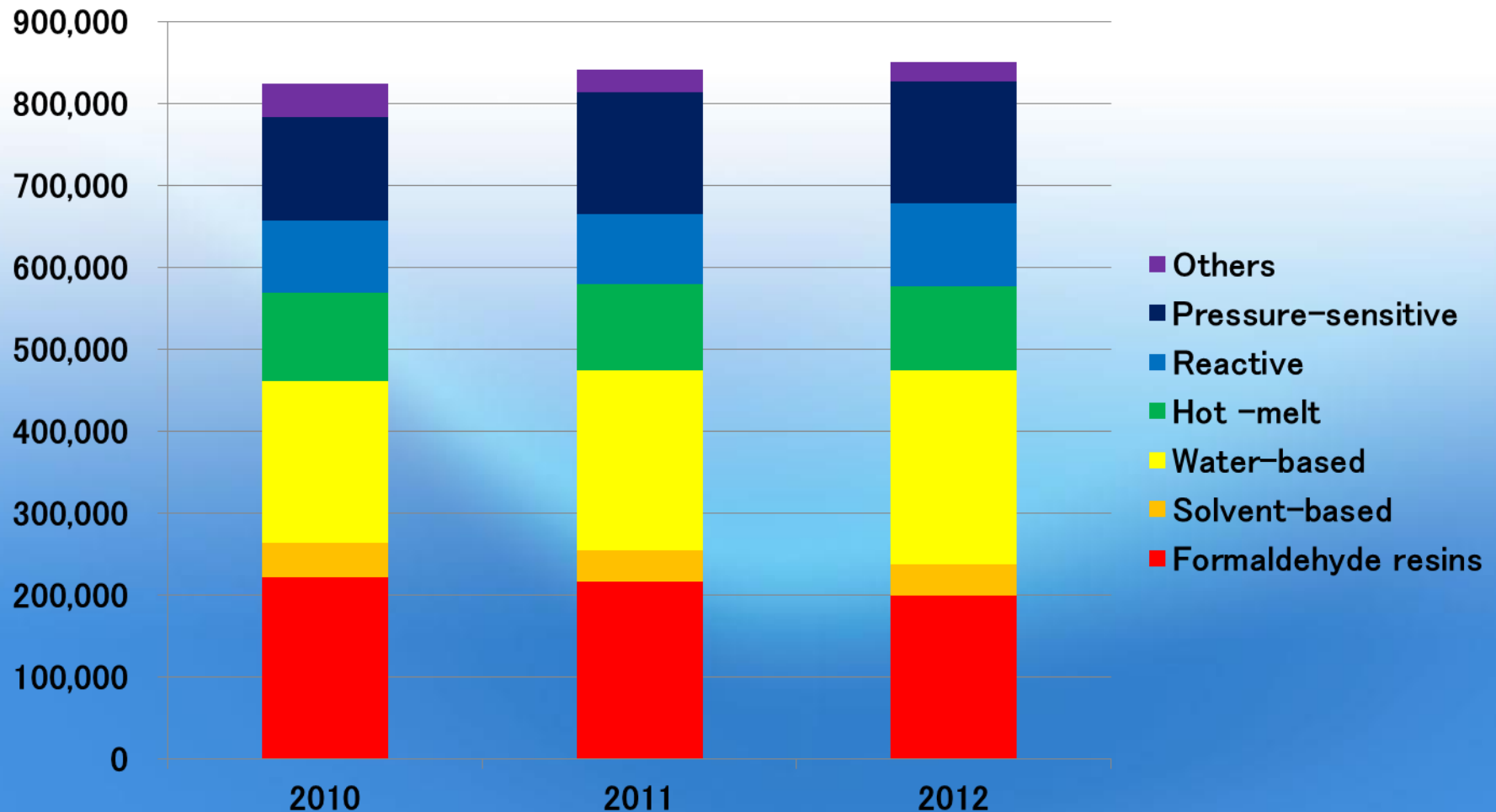
1. Production statistics
2. Promotion of standardization(JIS/JAI)
3. Certification of adhesives
  - Certification of **non-formaldehyde** (F☆☆☆☆ )
  - Certification of **4VOC Criterion**
4. Environmental safety measures
5. Educational activities regarding adhesives
  - Adhesive Technology School, lectures, etc.
6. International communion
7. Other activities

## Adhesives production break down by types

Adhesive type	Production Volume (Unit : tons)		
	2010	2011	2012
Formaldehyde resins	221,190	215,706	199,178
Solvent-based	42,215	38,143	37,778
Waterborne	197,671	220,436	237,141
Hot -melt	107,785	104,505	101,830
Reactive	87,879	85,567	101,915
Pressure-sensitive	126,844	148,629	148,491
Others	40,044	27,687	24,417
<b>Total</b>	<b>823,628</b>	<b>840,672</b>	<b>850,750</b>

# Adhesives production break down by types

Unit : tons

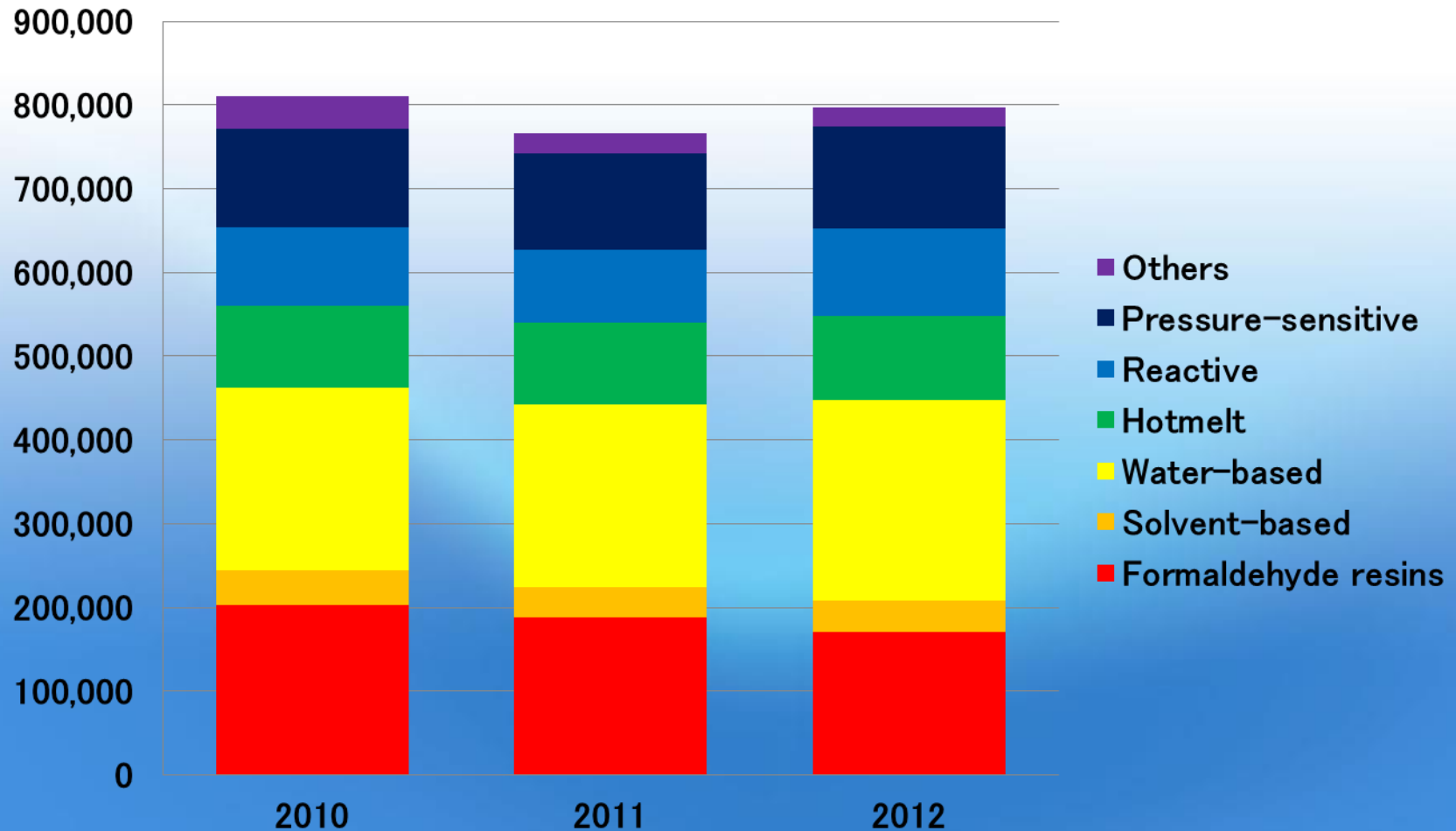


## Adhesives Sales break down by types

Adhesive type	Sales Volume (Unit : tons)		
	2010	2011	2012
Formaldehyde resins	202,178	187,529	170,554
Solvent-based	42,453	36,857	37,281
Waterborne	217,249	218,355	239,711
Hot -melt	98,862	96,658	100,853
Reactive	92,456	88,181	104,698
Pressure-sensitive	118,069	114,341	120,623
Others	39,054	24,298	23,990
<b>Total</b>	<b>810,321</b>	<b>766,219</b>	<b>797,711</b>

# Adhesives Sales break down by types

Unit : tons



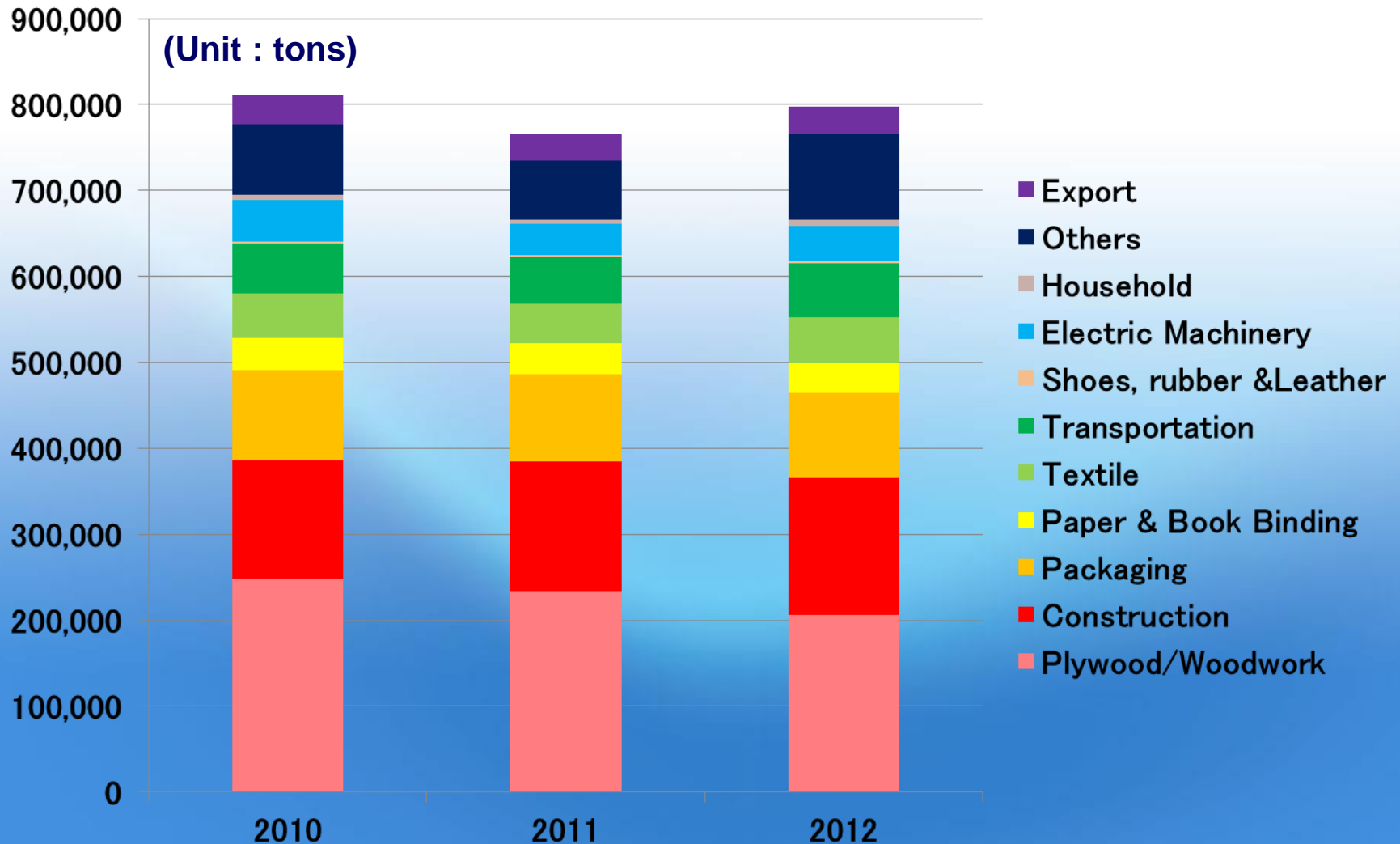
# SALES break down by application

(Unit : tons)

	2010	2011	2012
<b>Plywood/Woodwork</b>	248,788	233,926	206,492
<b>Construction</b>	137,320	151,290	158,724
<b>Packaging</b>	104,871	100,549	98,660
<b>Paper &amp; Book Binding</b>	37,492	36,318	35,980
<b>Textile</b>	51,547	46,273	52,025
<b>Transportation</b>	58,321	53,843	63,300
<b>Shoes, rubber &amp; Leather</b>	2,637	2,476	2,509
<b>Electric Machinery</b>	47,974	36,619	40,524
<b>Household</b>	5,518	4,548	8,177
<b>Others</b>	82,551	68,931	99,754
<b>Export</b>	33,302	31,446	31,566
<b>TOTAL</b>	810,321	766,219	797,711



# SALES break down by application



# JAIA ACTIVITY FOR ENVIRONMENT AND SAFETY

## Important Activity

- VOC Regulation Related IAQ (Indoor Air Quality) in Japan
- GHS (Dec. 2006~)
- JAIA Guideline for GHS labeling of household adhesives.  
(March. 2012)
- 48% reduction of VOC made in adhesives, in 11 years from 2000.
- Publication of survey result of indoor air pollution by VOC in adhesives 1<sup>st</sup> Edition in 2006, 2<sup>nd</sup> Edition in 2008 and 3<sup>rd</sup> Edition in 2010
- Voluntary Registration System for qualified adhesives.
- Negative List of food packaging adhesives (5<sup>th</sup> Edition)
- JIS Z 7253:2012 Hazard communication of chemicals based on GHS-  
Labelling and Safety Data Sheet (SDS)

# 13 Chemicals regulated by MHLW (Ministry of Health Labour and Welfare) in Japan (2000~)

## (Chemicals and concentration)

(unit :  $\mu\text{g}/\text{m}^3$ )

Chemical	Concentration	Chemical	Concentration
Formaldehyde	100	DBP	220
Toluene	260	DEHP	120
Xylene	870	Tetradecane	330
Ethyl Benzene	3800	Chlorpyrifos	1
Styrene	220	Diazinon	0.29
P-Dichlorobenzene	240	Phenyl butyl crbitol	33
Acetoaldehyde	48		


# Formaldehyde emission classification of Construction materials (July 2003~)

Labeling	Emission Rate mg/m <sup>2</sup> ·h	Indoor installation (area)
F ★★★★★	<5.0	No limit
F ★★★	5.0~20	Limited
F ★★	20~120	Limited
F ★	>120	Banned

F ★★★★★ is registered by JAIA and JIS (Japanese Industrial Standards)

# Control Concentration of 4VOC in Adhesives

(April 2008~)

VOC	※1 Guide line μg/m <sup>3</sup>		※2 ER μg/m <sup>2</sup> ·h	※3 JAIA Control Concentration (wt %)	Remarks
Toluene	260		38	<0.1%	EVA Emul. <0.05%
Xylene	870		120	<0.1%	
Ethyl- benzene	3,800		550	<0.1%	
Styrene	220		32	<0.015%	SBR

※1 Ministry of Health, Labor and Welfare: Concentration in indoor atmosphere

※2 VOC Emission Rate Control Level for Construction Materials  
 ・・・・ Japan Testing Center for Construction Materials

※3 Measurement Method: JAI16 (Japan Adhesive Industry Association Standard)

# REGISTRATION SYSTEM OF JAIA

(AS OF JUNE, 2013)

## 1. Non-Formaldehyde Products(F☆☆☆☆)

- Implemented in July 2003
- Open to non-members & overseas companies
- Current number of registration: 11,079 items filed by 77 companies (including 41 non-members and 2 overseas)

## 2. 4VOC ( JAIA-4VOC Approval )

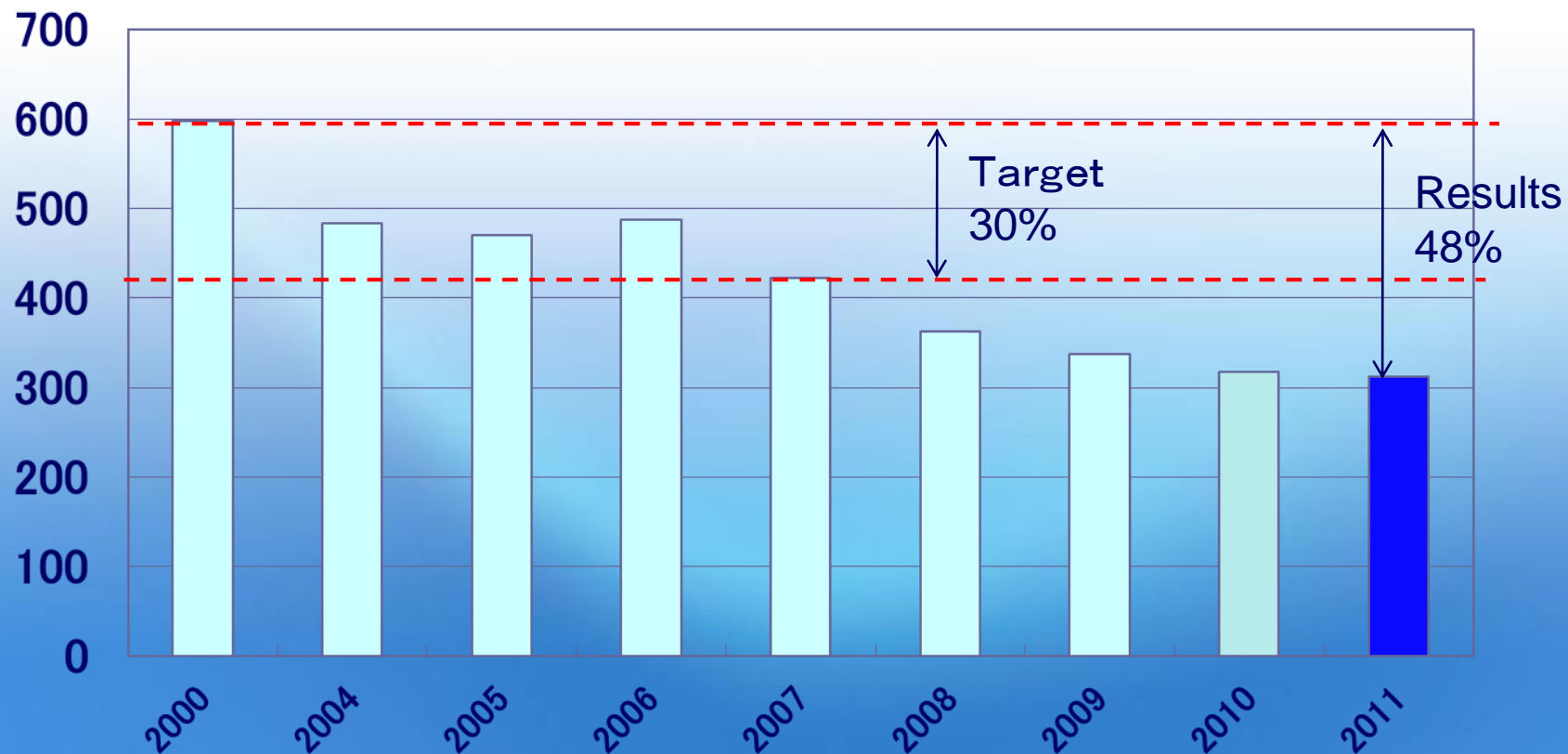
- Implemented in April 2008
- Open to non-members & overseas companies
- Current number of registration: 5,025 items filed by 60 companies (including 3 non-members, No overseas company )

So far no problem and dispute, caused by the registration system.

# Reduction of VOCs discharge (9VOCs)

9VOCs: Toluene, Ethyl acetic acid, Methanol, n-Hexane, MEK, Acetone, Rubber Solvent, Xylene, Cyclohexane

Unit: tons



THANK YOU VERY MUCH!

有難うございました

謝謝

감사합니다!