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CURRENT STATUS AND FUTURE OF LEAD-BASED PAINTS AND PIGMENTS: AN EXAMPLE OF JAPAN

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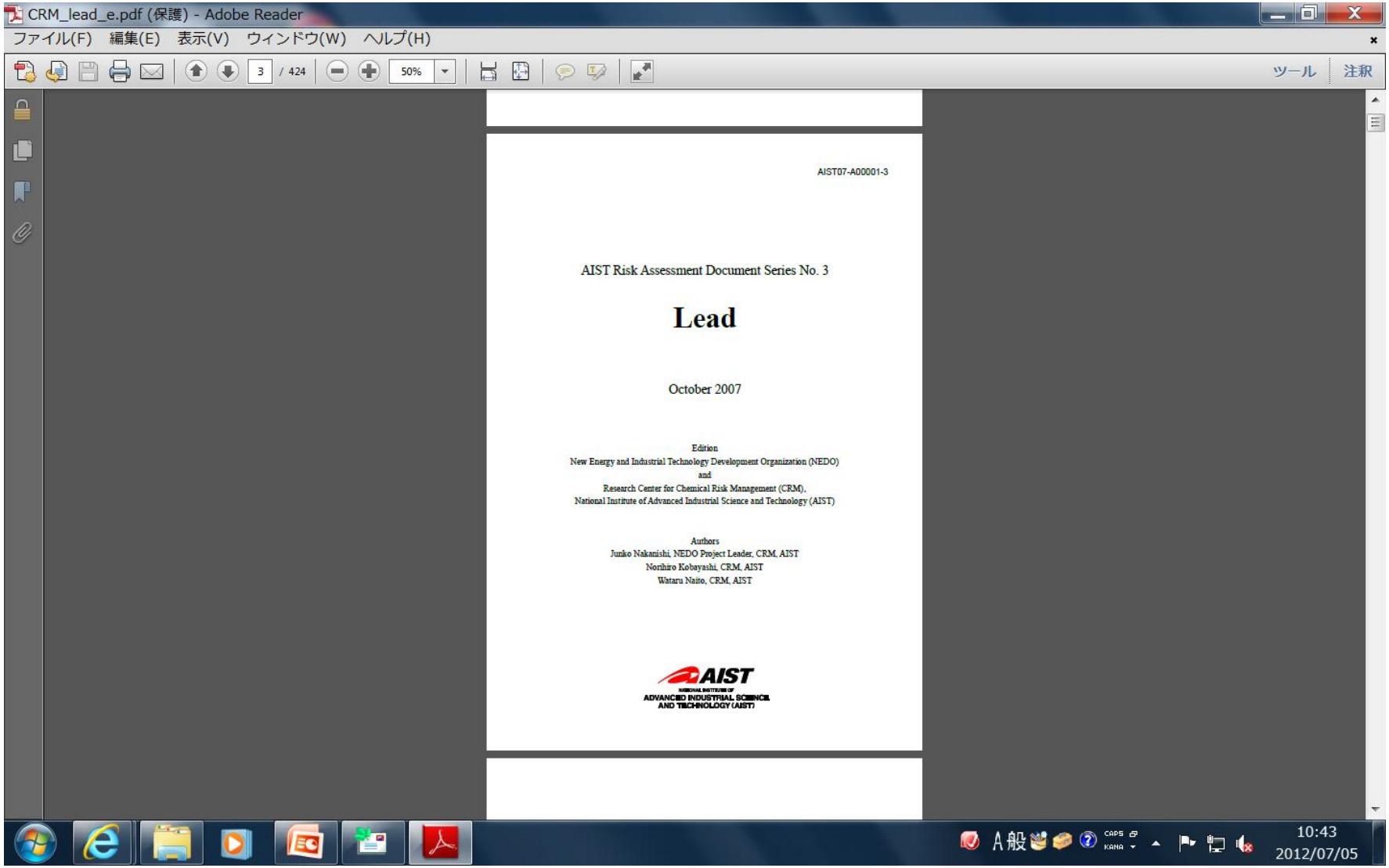
Risk assessment of lead

http://unit.aist.go.jp/riss/crm/mainmenu/e_1-13.html



Actions taken by Japanese paint industry

- In July 1992, Japan Paint Manufactures Association (JPMA) declared for “Risk Reduction on Lead“.
- This declaration was in response to the OECD’s chemical risk reduction project in 1990, with lead as one of the top five candidates for reduction efforts.
- JPMA decided to promote risk reduction for lead voluntarily and not to use lead for (1) products to which infants and expecting mothers may be exposed ; and (2) products which may contact with water and food.
- JPMA adopted a volunteer standard JISK5674 (lead and chromium free anticorrosive paint) in November 2003.
- In 2007, *JPMA Standard Paint Colors Version D* excluded all lead-based paints.

Japan

Green Purchasing Law enforced in April 2001

- 国等による環境物品等の調達の推進等に関する法律
- Law Concerning the Promotion of Procurement of Eco-Friendly Goods and Services by the State and Other Entities
- Primer (under coat) should be lead-free.

Japan

Major lead compounds for paints and pigments

- Chrome yellow: $PbCrO_4$
- Molybdenum red (chrome vermilion):
  $PbCrO_4 \cdot nPbMoO_4 \cdot mPbSO_4 \cdot x\ Al(OH)_3$
- Red lead: Pb_3O_4
- Litharge: PbO
- White lead: $2PbCO_3 \cdot Pb(OH)_2$

Use of lead for pigments and compounds

(International Lead and Zinc Study Group, 2008)

Year	2000	2001	2002	2003	2004	2005	2006
India	13,100	11,500	11,800	12,700	13,500	1,2800	
Korea	21,400	10,500	20,300	21,200	4,100	3,300	,3000
Korea (pigment*)	9,452	4,638	8,966	9,363	1,811	1,458	1,325
Thailand	15,400	14,300	18,200	19,600	19,400	18,100	

* Propotional distribution but for 2006

India, Korea, Thailand

Lead used to produce pigments in Japan (t)

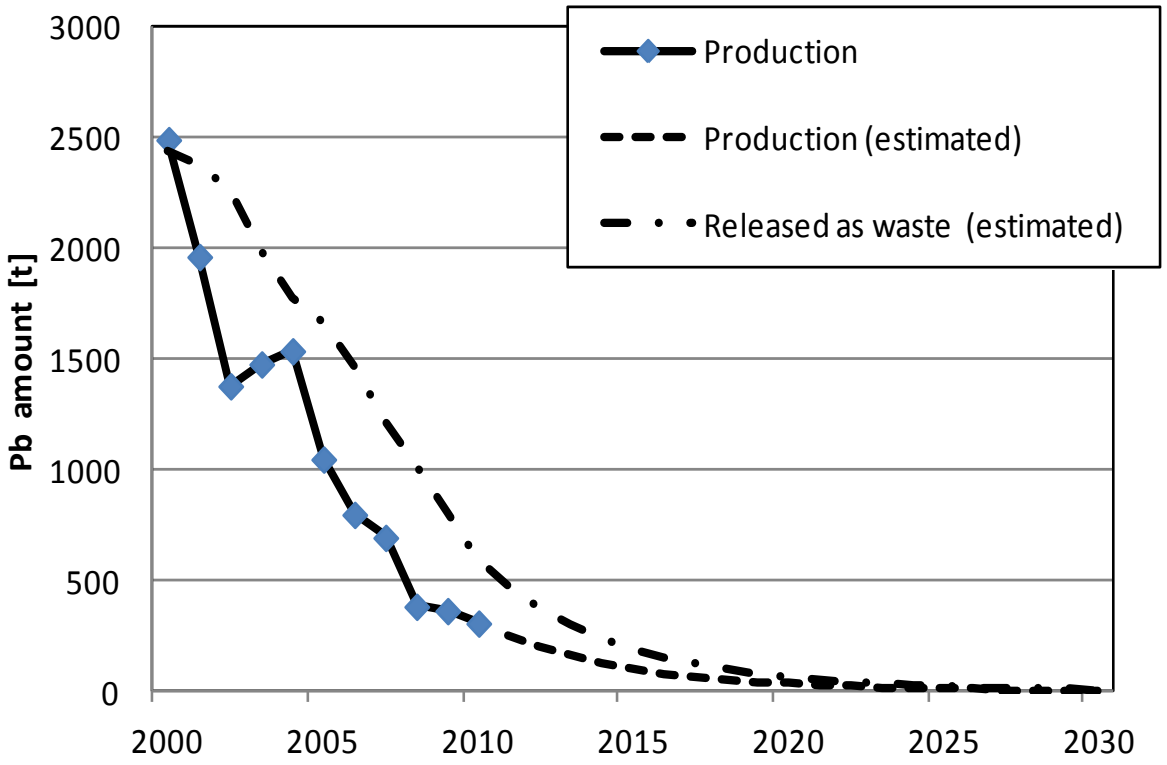
Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Chemicals [1]	38,300	29,300	20,100	20,600	25,700	19,400					
Industrial inorganic chemicals [2]		27,186	20,610	22,085	22,972	15,671	11,940	10,389	5,742	5,451	4,610
Pigments and paints*		1,821	1,381 [3]	1,480	1,539	1,050	800	696	385	365	309

* Proportional distribution based on the data in 2002

[1] ILZSG (2008)
[2] Kouzan (2011) Vol.64, No.7, p.94.
[3] Japan Inorganic Chemical Industry Assoc. (2002)

Japan

Current and future trend of lead-based paint (production and waste) in Japan



Information from the Asian Paint Industry Council

- Indian Paint Association
- Indonesian Paint Manufacturers' Association
- Korea Paint & Printing-Ink Industry Cooperative
- Singapore Paint Manufacturers Association
- Sri-Lanka Paint Manufacturers Association
- Thai Paint Manufacturers Association
- Taiwan Paint Industry Association
- China National Coatings Industry Association
- Japan Paint Manufacturers Association
- Malaysian Paint Manufacturers' Association
- Pakistan Paint Manufacturers' Association
- Bangladesh Paint Manufacturers Association
- Philippine Association of Paint Manufacturers
- Vietnam Paint and Printing Ink Association
- Australian Paint Manufacturers' Federation

One of the bright spots in the coatings market has been the Asia-Pacific.

From 2002 to 2007, the global coatings market grew by over 30 percent. This is in stark contrast to the 2008-2009 timeframe, where the market actually contracted by nearly three percent.

The Asia-Pacific region has dramatically outperformed the global market in terms of both volume and value growth. From 2004 to 2009, the Asia-Pacific coatings segment grew by 60 percent in volume and value. Due to its rapid growth over the past five years, the Asia-Pacific region has become the largest market for paint and coatings in the world.

Scott Detiveaux and Allen Tsaur (2011). The Asia-Pacific Paint and Coatings Market. Retrieved July 5, 2012, from http://www.coatingsworld.com/issues/2011-08/view_features/the-asia-pacific-paint-and-coatings-market/