

**THE TAINTED MILK FORMULA SCANDAL:
ANOTHER HARD LESSON FOR CHINA**

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Executive Summary

1. China is seeking to move up the value-added chain through industrial upgrading and building its own “Made-in-China” brands. Unfortunately, a long string of food/product safety controversies has compromised the process with the tainted infant formula being the latest scandal.
2. The scandal was initially centred on Sanlu, a Hebei-based dairy company, whose melamine-contaminated baby milk powder had sickened a growing number of infants. Nationwide inspections later found that milk powder from 21 dairy companies including Mengniu and Yili are also contaminated.
3. By the end of September 2008, the milk scandal had sickened more than 53,000 babies, with four dead and over 150 suffering from acute kidney failure. It has also spilled over to other countries as some melamine-contaminated milk products were exported overseas.
4. The scandal is the result of fierce competition among local dairy companies in the low-end market vying for a larger share under a weak quality-control regulation system. This created pressures and opportunities for the local dairy companies to tamper with their products to cut cost.
5. The failure of the local government and local firms to respond to the tainted milk also exacerbated the problem. In fact, they only informed the public and recalled the affected products in mid-September 2008 even though the Sanlu Group knew about the contamination as far back as last December, and the Shijiazhuang city government was informed in early August 2008.
6. The delay was largely because Sanlu’s first instinctive reaction was to cover up the matter to protect its brand name. More importantly, it was doing this with the collusion and tacit support of the local authorities, who rely on large local firms to provide employment, revenue and perhaps personal benefits.

7. When the matter was blown up to the central government, which had the ghost of the SARS saga in mind, the central government acted decisively. It carried out thorough investigations into the cause of contamination, and activated the accountability system (问责制) to remove Li Changjiang, China's chief quality supervisor, and Ji Chuntang, mayor of Shijiazhuang city, from their posts.
8. The central government also promised to compensate the victims, and called for an overhaul of the milk buying system and a revision to existing quality-control laws. There is also a high level of transparency as it shares information with the public and other countries on the scandal. It did not attempt to cover up the incident.
9. Overall, the crisis management mechanism of the central government responded effectively and decisively after Hu and Wen stepped in. Nevertheless, the food safety problem is systemic, involving weak quality-control at both the central and local levels. The problem is widening as more loopholes at the central level are exposed.
10. China is a huge country that relies on multiple levels of local government to implement central policies and provide social services. There is no guarantee that similar incidents will not happen again. But as the experience in developed countries has shown, food safety problems have been an integral part of the development process. As consumer awareness increases and firms value their brand names, China in the long run will improve its food safety and consumer welfare.

THE TAINTED MILK FORMULA SCANDAL: ANOTHER HARD LESSON FOR CHINA

ZHAO Litao & LIM Tin Seng*

The Unfolding Milk Formula Scandal

- 1.1 China is seeking to become an economic powerhouse by moving up the value-added chain and building its own “brand name” and “Made-in-China” label. Unfortunately, a long string of food/product safety problems has compromised the process with the tainted infant formula being the latest scandal.
- 1.2 On 8 September 2008, a local newspaper in Gansu reported that 14 babies were diagnosed with kidney stones. The unusual outbreak of kidney stones was linked to an unnamed milk formula, which was later revealed by officials on 11 September to be *Sanlu Bei Bei Infant Powder*, a low-end baby formula by the Hebei-based Sanlu Group.
- 1.3 Investigations by local and central authorities discovered that the Sanlu baby milk powder was laced with melamine, a substance used in plastics and fertilisers and banned in food production. Infants who drink the melamine-contaminated formula for sustained periods can develop kidney stones and suffer kidney failure.
- 1.4 Thereafter, the tainted Sanlu milk formula incident quickly unfolded to be a nationwide scandal and yet another international embarrassment. It also becomes the latest in a long string of food/product safety problems in China. For instance, in 2004, 13 babies died and more than 200 were sickened in Anhui province from malnutrition after being fed with counterfeit Sanlu milk

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powder that contains no nutritional value.¹ In 2007, China's export of pet food ingredients tainted with melamine contributed to one of the largest pet food recalls in U.S. history.² Exports of lead-tainted toys to the U.S. and contaminated dumplings to Japan further cast doubt on the quality of Chinese products.

- 1.5 The milk formula scandal is a new blow to the Chinese government which promised in 2007 to revamp its food and drug regulatory system. The scandal was initially focused on Sanlu Group. Nationwide inspections later found another 21 dairy companies (out of a total of 109) to have produced batches of formula tainted with melamine, including dairy giants Yili and Mengniu groups from Inner Mongolia and Bright Dairy from Shanghai.³ By the end of September, the tainted formula had sickened more than 53,000 babies. Among them, four had died and over 150 are suffering from acute kidney failure. The Ministry of Health expects the toll to climb in the coming weeks as it urged local health agencies to search for more unreported cases.⁴
- 1.6 Nationwide inspections also found traces of melamine in some batches of liquid milk and yogurt. Initially, the melamine-contaminated milk powder was confined to mainland China but reports indicated that it had sickened five children in Hong Kong and Macau.⁵ Health authorities in some countries have begun to carry out their own test on Chinese dairy products and found melamine in other milk products such as yogurt and candies.⁶

¹ "China 'Fake Milk' Scandal Deepens", *BBC News*, 22 April 2004.

² "China Finds Two Companies Guilty in Tainted Pet Food Export," *International Herald Tribune*, 8 May 2007.

³ "Melamine Found in More Milk", *China Daily*, 17 September 2008.

⁴ "China warns more may be sickened by tainted milk", *CNBC*, 16 September 2008.

⁵ Melamine is an industrial chemical used for plastic-making.

⁶ "White Rabbit Creamy Candy" from China also tainted with melamine", *Channel News Asia*, 21 September 2008.

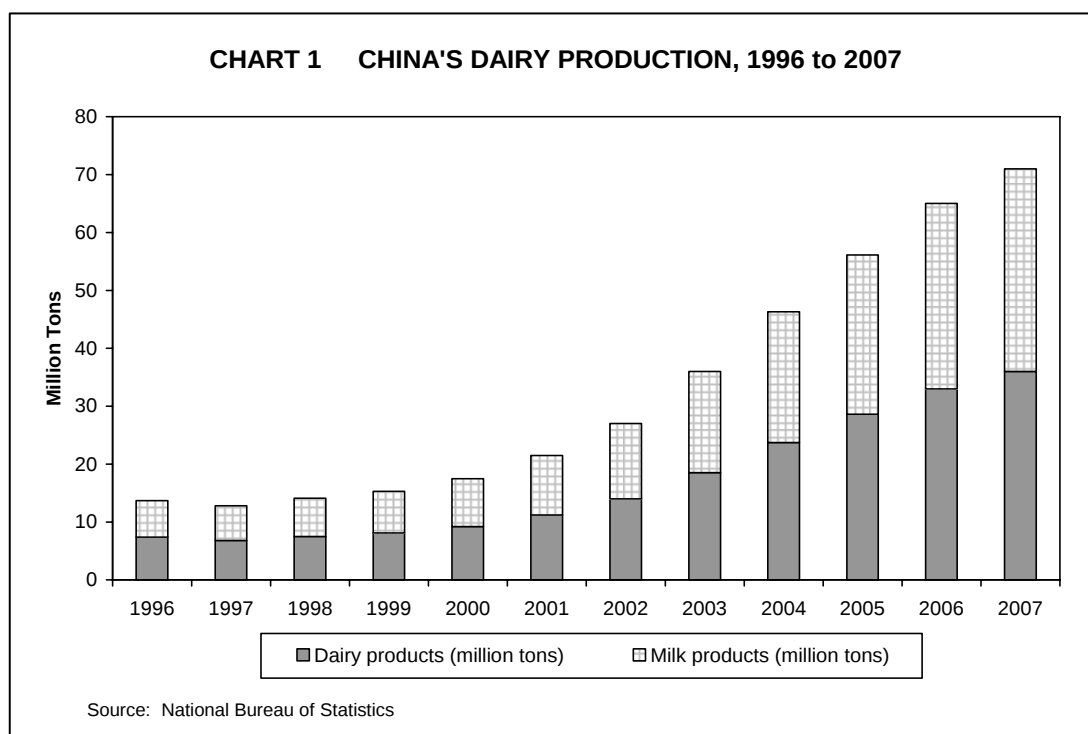
- 1.7 As contaminated raw milk may have found its way into other dairy products such as ice cream and other food products that use milk powder, the worst may be ahead for China's dairy industry, its consumers and government.⁷
- 1.8 The milk formula scandal reveals a form of market failure which was aggravated by the failure of the government to act or to revamp its quality-control regulation. The incident has not only sickened an unprecedented number of infants, but also severely eroded public confidence in China's food industries and the government's ability to improve consumer welfare.

The Market Factor in the Tainted Milk Scandal

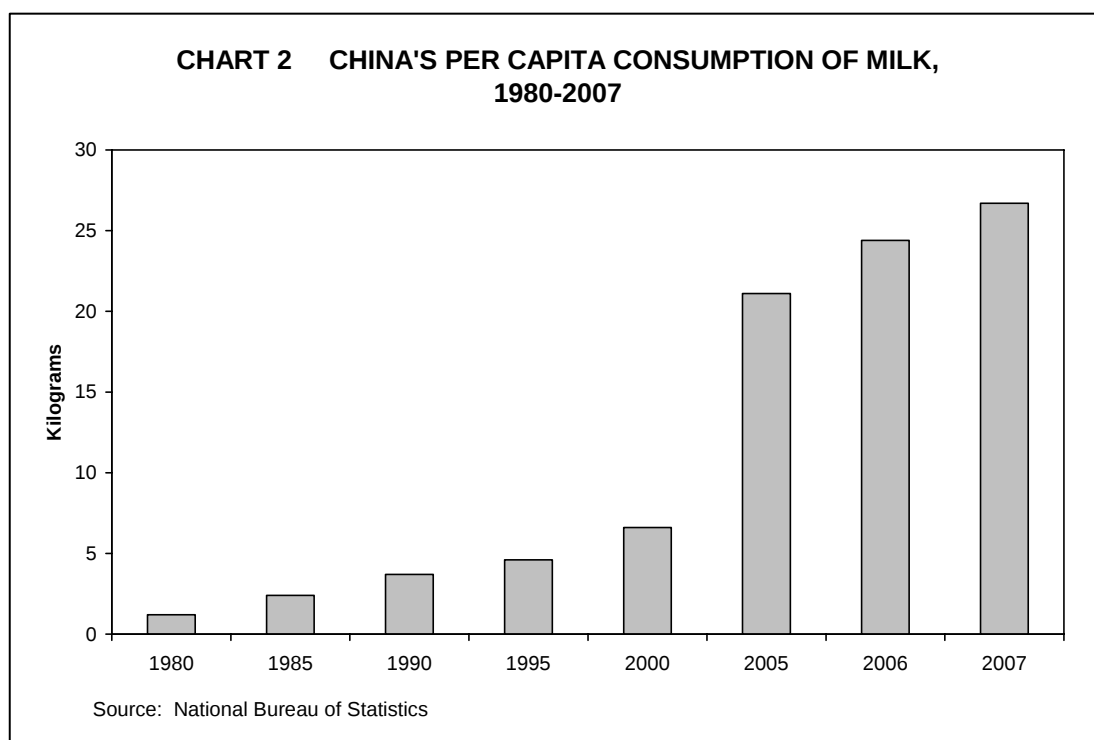
- 2.1 The tainted formula scandal emerges amid a burgeoning dairy industry. The last decade has witnessed fundamental structural changes in the dairy industry as local firms strived to become national players. According to the National Bureau of Statistics, dairy production increased from about 18 million tons in 2000 to over 70 million tons by the end of 2007 (see Chart 1). According to Merrill Lynch, the industry was worth well over US\$20 billion in 2007.⁸

⁷ "Milk Scandal Threatens China Dairies", *Financial Times*, 17 September 2008.

⁸ "Dairy industry takes a fatal beating", *China Business Weekly*, 22 September 2008.



2.2 The growth of the dairy industry was the result of the changing purchasing habits of Chinese consumers. Due to China's high economic growth and its liberalization process, Chinese consumers are seeking higher value-added dairy products such as milk beverages, yogurt and cheese. In fact, the country's per capita yearly consumption of milk has grown nearly 4-fold since 2000 from 7 to nearly 27 kilograms in 2007 (see Chart 2).



- 2.3 Despite witnessing a growing dairy industry, local milk producers had to compete not only against each other, but also with foreign companies. In fact, high-end infant formula market is largely dominated by foreign milk powder companies. For example, Mead Johnson, a unit of Bristol-Myers Squibb, leads with a 25 percent market share. Wyeth and Dumex, the powdered-milk unit of France's Danone, have 20 percent and 12 percent share, respectively.⁹
- 2.4 The dominant position of foreign companies in the high-end infant formula market leaves domestic firms with only the lower-end market, which has also been expanding rapidly as a growing number of young parents (e.g. migrant workers) shift from breast-feeding to bottle-feeding. The situation that these companies faced was complicated by rising domestic inflation and the government's price control over staple foods, including milk products.
- 2.5 These circumstances drive local dairy producers to cut corners by lowering its prices and quality standards so that they could acquire a larger market share.

⁹ <http://www.reuters.com/article/marketsNews/idUSPEK11092420080919?pageNumber=1&virtualBrandChannel=10272>, accessed 22 September 2008.

Some of the companies are in a better position as they set up their own cow farms (奶牛基地) to have a direct supply of raw milk. Those unable to establish their own cow farms would approach independent local milk collection centres.

- 2.6 As these independent collection centres are not under the supervision of the management of the dairy companies, it provides them with ample opportunities to tamper their products by adding melamine to watered-down raw milk. Furthermore, owners of these collection centres may collude with purchasing agents of dairy companies to provide tampered supply.
- 2.7 Independent collection centres are also not supervised by the state. In fact, Sun Zhengcai, the Minister of Agriculture, noted that currently, milk collection centres in China are not regulated as they only began operation recently. This makes it difficult for the state to ensure quality control in the centres, giving owners of milk collection centres the opportunity to work with cow farmers as well as purchasing agents of dairy companies to provide tampered milk supply.
- 2.8 The Sanlu formula scandal seems to have stemmed from the independent, “decentralized” supply chain. The Sanlu Group is based in Hebei province, which has become a major supplier of raw milk to China’s dairy industry. Unlike some provinces which restrict non-local dairy companies from accessing local milk supply, Hebei has been very open to non-local dairy companies. Sanlu’s major competitors such as Mengniu, Yili and Bright Dairy all come to Hebei to secure raw milk, putting Sanlu in a disadvantaged position in a market based on the high-volume low-margin strategy.
- 2.9 Sanlu’s competitiveness is further weakened by its dependence on the decentralized supply of raw milk. It was reported that the police had arrested two brothers, who added melamine to the raw milk sold to a local milk collection centre linked with Sanlu. They failed to sell their raw milk previously because their raw milk was not rich enough in protein. They later

learned that melamine, which is high in nitrogen, can artificially inflate protein count.

- 2.10 While more details have yet to be exposed, it is clear that Sanlu's problem is rooted in the decentralized supply of raw milk, which makes quality control more difficult and tampering easier. The Sanlu scandal suggests that markets cannot always guarantee the delivery of quality food products.

Tainted Formula as a Government Failure

- 3.1 When asymmetric information about product ingredients and product quality creates concerns of market failure, there is a need for product quality regulation by the government. However, as the tainted formula suggests, institutions put in place by the Chinese government have failed miserably to protect and improve consumer welfare. In other words, there is not only a market failure but also a government failure.
- 3.2 At the central level, the General Administration of Quality Supervision, Inspection and Quarantine (GAQSIQ) is a major regulator of food safety. The infant formula scandal has highlighted loopholes in the inspection system. GAQSIQ has allowed food producers designated as national brand names to bypass inspections. Sanlu was on such an inspection-free list and yet its products were found to contain the highest level of melamine. Furthermore, as mentioned earlier, the GAQSIQ did not put in place regulations that would ensure the safety and quality of milk supply from milk collection centres.
- 3.3 The National Development and Reform Commission (NDRC), a micromanagement agency under the State Council, is also criticised in this tainted milk formula scandal. NDRC has sought to limit price increases of staple foods, including milk products, to ease the inflationary pressure this year. Government price-caps have forced dairy companies to diffuse cost

pressures through the supply chain all the way to cow farmers, creating greater incentives for adulteration by adding melamine to raw milk.¹⁰

- 3.4 By comparison, there are more problems at the sub-national level. In the case of the Sanlu infant formula scandal, the city government of Shijiazhuang (capital city of Hebei province) was singled out for crisis mismanagement. The Sanlu Group reportedly received complaints about its products as far back as December 2007. The Shijiazhuang city government was not informed until 2 August 2008. Instead of alerting the public and informing the provincial government, both the Sanlu Group and city officials appeared determined to cover up the problem.
- 3.5 Fonterra, a New Zealand-based dairy conglomerate which owns 43 percent share of the Sanlu Group, did not learn of the problem until a Sanlu Board meeting on 2 August 2008. Fonterra then urged the contaminated products to be recalled but the attempt was blocked by the local government. This prompted Fonterra to bring the matter to the New Zealand government on 5 September 2008 which then blew the whistle in Beijing prompting the Chinese government to launch a nationwide probe right about the same time when the first victims were reported in Gansu province.¹¹
- 3.6 On 8 September 2008 a local newspaper in Gansu linked the first 16 victims to tainted infant formula without naming Sanlu Group. It was no coincidence that the Shijiazhuang city government finally reported the problem to the Hebei provincial government on 9 September 2008, which in turn reported to the central government on 10 September 2008. Very quickly public attention turned from the “truly exceptional” Beijing Olympic Games to the Sanlu infant formula scandal, which turned out to be an industry-wide problem rather than an isolated incident.

¹⁰ <http://www.bloomberg.com/apps/news?pid=20601081&sid=akpIvOdJlrWU&refer=australia>, accessed 22 September 2008.

¹¹ “Fonterra: We Acted Responsibly on Killer Milk”, *The New Zealand Herald*, 16 September 2008.

- 3.7 The tardy response at the local level partly reveals the slow decision-making process in the multi-level party and government hierarchy, and partly shows China's weak crisis management capabilities, particularly at the local levels. As in the Sichuan earthquakes and the snow storm earlier this year, the effective and powerful state machinery only started to operate when the highest authorities like Hu Jintao and Wen Jiabao personally intervened.
- 3.8 The slow action at the local level has a more fundamental reason. Local governments tend to cover up the problem for local firms, particularly the larger ones like Sanlu, because local governments rely on them to provide employment and generate revenues. Local governments at the county and city level are hard pressed to spend on basic education, healthcare, pension and other public services, and local officials are given strong career incentives to compete with officials of neighbouring areas for better political, economic, social and environmental performances.
- 3.9 As seen in the Severe Acute Respiratory Syndrome (SARS) outbreak in 2002, taking pre-emptive measures are no doubt the best way to deal with any type of crisis especially those related to health. However, local officials blinded by their obsession for GDP growth led them to place their own interests before those of the public.
- 3.10 While alerting the public as early as possible proves the best way to manage public safety issues, what local officials care most is not the public interest above and beyond the local level. They are most concerned about their local interest and fear that alerting the public could raise the awareness of otherwise uninformed consumers, thereby exacerbating rather than mitigating the problem for local firms. Insofar as local governments and local firms place their own interest above trans-local public interest, it would be unrealistic to expect that the central government's efforts to improve food/product safety to be filtered down to the local level.

Fallouts of the Infant Formula Scandal

- 4.1 When the Sanlu infant formula scandal became known to the central government, China launched a “first class national food emergency response” to carry out thorough investigations into the cause of the contamination. In less than three weeks, the operation had tracked and shut down the sources, arrested 18 suspects, detained 28 others and summoned more than 80 people for questioning.¹² Ji Chuntang, the mayor of Shijiazhuang, was dismissed for failing to act after receiving earlier reports on the tainted milk formula. Li Changjiang, director of the General Administration of Quality Supervision, Inspection and Quarantine, was also dismissed as public anger over tainted milk mounted. The central government also calls for an overhaul of the milk buying system and a revision to the existing quality-control regulations.
- 4.2 Undoubtedly, these actions were swift and decisive illustrating how China has changed in response to health emergencies after the SARS outbreak in 2002 and the series of food-scare incidents and natural disasters in recent years. Beijing’s willingness to share information with the public and to inform other countries of the incident also showed a different China which is more open and transparent.
- 4.3 While the central government has activated an accountability system (问责制) in the wake of the scandal, it remains to be seen how this system works in the long run. There is ample evidence, however, that the problem is more systemic than the misbehaviour of individual officials. Other factors, such as the intimate relationship between local governments and local firms (or between local officials and local entrepreneurs) as well as the GDP-centred mindset of local officials, also create problems for the effective enforcement of central regulations at the local level.
- 4.4 Nevertheless the central government should find an ally in the media in the domain of public safety issues. The Sanlu scandal was initially brought to the

¹² “12 more arrested in China's tainted milk scandal”, *Associated Press*, 19 September 2008.

public by a newspaper in Gansu. Insofar as public safety issues are concerned, the media can be a valuable, independent source of information that local governments and firms may seek to block or distort. Thus far the central government has been very cautious in dealing with the local media. There was speculation that the public could have been alerted earlier about the tainted formula, but China's propaganda department restricted any reporting on food safety issues during the Olympics.

- 4.5 China's dairy industry has been badly affected by the scandal. Dairy giants such as Mengniu and Yili have developed China's most valuable brands in the food industry in less than a decade. Their efforts to consolidate their domestic position and venture into the overseas market, however, have been dampened by the scandal. Mengniu has issued a public apology, and promised to recall all tainted dairy products and offered to foot the medical bills for all consumers who fall ill within the next five years. Yili also recalled all unsold milk powder.
- 4.6 Foreign brands stand to gain from the scandal. Mead Johnson is reportedly raising the price of its products and seeking to take an even larger share in China's high-end infant formula market. Some domestic dairy producers such as Beijing-based Sanyuan, which are not on the list of tainted milk powder producers, also see opportunities of expansion in this difficult time. It remains to be seen whether these smaller and local players can rise to become national brand names. Nevertheless China's large dairy markets will recover eventually, and produce national leaders, be they Mengniu, Yili, or currently less well known producers.
- 4.7 In the short run, China's consumers are turning to soy milk and other traditional foods and drinks as substitutes for dairy products,¹³ giving traditional food/drink producers an opportunity to emerge after being marginalized by dairy producers. It is still uncertain whether a soy milk industry can rise to rival the dairy industry though. The issue is not simply

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Starbucks, which used Mengniu milk, now recommends soy milk to customers instead.

about nutritional values, but also about consumer preference shaped by cultural values and lifestyles.

- 4.8 China's consumers will benefit from safe and high-quality food, but it could come at a cost, particularly for low-income families, who may find it increasingly difficult to afford dairy products. While a more effective enforcement of quality control in the low-end consumer market can help solve the problem of adulteration, it may create a new problem of affordability. The new problem, of course, will call for new solutions rather than a return to the past.
- 4.9 Overall, the crisis management mechanism of the central government responded effectively and decisively after Hu and Wen stepped in. Nevertheless, the food safety problem is systemic, involving weak quality-control at both the central and local levels. The problem is widening as more loopholes at the central level are exposed.
- 4.10 China is a huge country that relies on multiple levels of local government to implement central policies and provide social services. There is no guarantee that similar incidents will not happen again. But as the experience in developed countries has shown, food safety problems have been an integral part of the development process. As consumer awareness improves and firms value their brand names, China in the long run will improve its food safety and consumer welfare.

**APPENDIX 1 LIST OF PRODUCERS OF MELAMINE-CONTAMINATED
BABY MILK POWDER**

No.	Milk Powder Brands	No. of Items Submitted for Testing	No. of Items Detected with Melamine	Melamine Levels in Detected Products
1	石家庄三鹿集团股份有限公司生产的三鹿牌婴幼儿配方乳粉	11	11	2563.00 mg/kg
2	上海熊猫乳品有限公司生产的熊猫可宝牌婴幼儿配方乳粉	5	3	619.00 mg/kg
3	青岛圣元乳业有限公司生产的圣元牌婴幼儿配方乳粉	17	8	150.00 mg/kg
4	山西古城乳业集团有限公司生产的古城牌婴幼儿配方乳粉	13	4	141.60 mg/kg
5	江西光明英雄乳业股份有限公司生产的英雄牌婴幼儿配方乳粉	2	2	98.60 mg/kg
6	宝鸡惠民乳品（集团）有限公司生产的惠民牌婴幼儿配方乳粉	1	1	79.17 mg/kg
7	内蒙古蒙牛乳业（集团）股份有限公司生产的蒙牛牌婴幼儿配方乳粉	28	4	68.20 mg/kg
8	中澳合资多加多乳业（天津）有限公司生产的可淇牌婴幼儿配方乳粉	1	1	67.94 mg/kg
9	广东雅士利集团股份有限公司生产的雅士利牌婴幼儿配方乳粉	30	10	53.40 mg/kg
10	湖南培益乳业有限公司生产的南山倍益牌婴幼儿配方乳粉	3	1	32.00 mg/kg
11	黑龙江省齐宁乳业有限责任公司生产的婴幼儿配方乳粉 2 段基粉	1	1	31.74 mg/kg
12	山西雅士利乳业有限公司生产的雅士利牌婴幼儿配方乳粉	4	2	26.30 mg/kg
13	深圳金必氏乳业有限公司生产的金必氏牌婴幼儿配方乳粉	2	2	18.00 mg/kg
14	施恩（广州）婴幼儿营养品有限公司生产的施恩牌婴幼儿配方乳粉	20	4	17.00 mg/kg
15	广州金鼎乳制品厂生产的金鼎牌婴幼儿配方乳粉	3	1	16.20 mg/kg
16	内蒙古伊利实业集团股份有限公司生产的伊利牌儿童配方乳粉	35	1	12.00 mg/kg
17	烟台澳美多营养品有限公司生产的澳美多牌婴幼儿配方乳粉	6	6	10.70 mg/kg
18	青岛索康营养科技有限公司生产的爱可丁牌婴幼儿配方乳粉	3	1	4.80 mg/kg
19	西安市阎良区百跃乳业有限公司生产的御宝牌婴幼儿配方乳粉	3	1	3.73 mg/kg
20	烟台磊磊乳品有限公司生产的磊磊牌婴幼儿配方乳粉	3	3	1.20 mg/kg
21	上海宝安利乳品有限公司生产的宝安利牌婴幼儿配方乳粉	1	1	0.21 mg/kg
22	福鼎市晨冠乳业有限公司生产的聪尔壮牌婴幼儿配方乳粉	1	1	0.09 mg/kg

APPENDIX 2 TOLERABLE DAILY INTAKE OF MELAMINE

The Tolerable Daily Intake (TDI) of melamine as established by the US Food and Drug Administration is 0.63 mg/kg body weight. This means that an adult weighing 60 kg or a child weighing 30 kg can ingest 37.8 mg of melamine and 18.9 mg of melamine respectively every day over a lifetime without any appreciable health risk.

Based on the melamine levels detected by Agri-Food & Veterinary Authority of Singapore in the three affected products, the TDI limits translate to the following amounts of contaminated products for an adult weighing 60 kg or a child weighing 30 kg respectively:

Adult of 60 kg weight	Child of 30 kg weight
7 bars of Yi Li Choice Dairy Fruit BarYogurt Flavoured Ice Confection daily over a lifetime	3.5 bars of Yi Li Choice Dairy Fruit Bar Yogurt Flavoured Ice Confection daily over a lifetime
815 ml of Dutch Lady Strawberry flavoured milk daily over a lifetime	407.5 ml of Dutch Lady Strawberry flavoured milk daily over a lifetime
47 pieces of White Rabbit Creamy Candy daily over a lifetime.	23.5 pieces of White Rabbit Creamy Candy daily over a lifetime

Even if consumers have occasionally ingested more than the above amounts, the health risk will still be low, because the TDI limits incorporate a margin of safety of 100-fold.

Source: Agri-Food & Veterinary Authority of Singapore