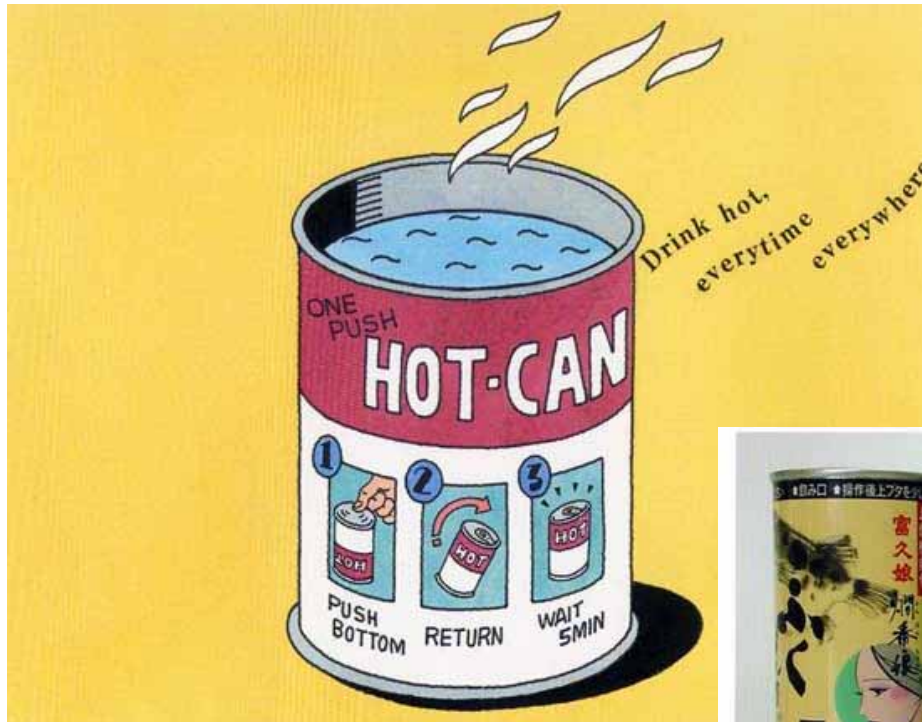




Drink hot, every time every where,,,

Self Heating Can !!

English Edition; translated from Japanese Edition, and arranged for foreign market



▲お燗機能付きのお酒 / Japanese Sake in Self-Heating Can

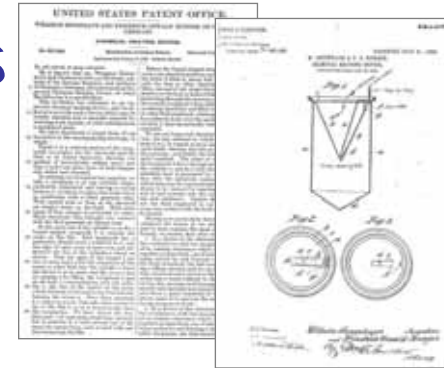
Kita Sangyo Co., Ltd.

Text T. Kita, 05/31/MMII



Basic functions and principles

Pushing the bottom button makes a reaction of lime (CaO) and water (H₂O), which generates a very safe heat. The content, such as alcoholic beverage, etc. is warmed up at about plus 40 degrees Celsius in about 5 minutes.



- The basic idea is not new. When we firstly tried to take a US patent in mid. 80s, the US Patent Office rejected our first proposal, by quoting some previous inventions, one of which was #827,222 (above), patented in 1906, almost 100 years ago! The idea itself is almost 100 years old.
- After that, Kita Sangyo has taken many patents. However, much important point rather than patent is; know-how of super quality control and the very detail design for safety.
- For example, one of the important points for safety is, controlling the granule size distribution of lime in every each container. Too much "powder" makes high steam pressure, i.e. dangerous, and too big lime "blocks" don't make required heat. Adding this, block tends to go smaller or powder while shipping and storage in the market. If you make 1000 Self-Heating Cans, it may not a difficult thing. But, if you produce 1 million Self-Heating Cans, and keeping safe and stable heating on every 1 million can is required very tough quality control and know-how.

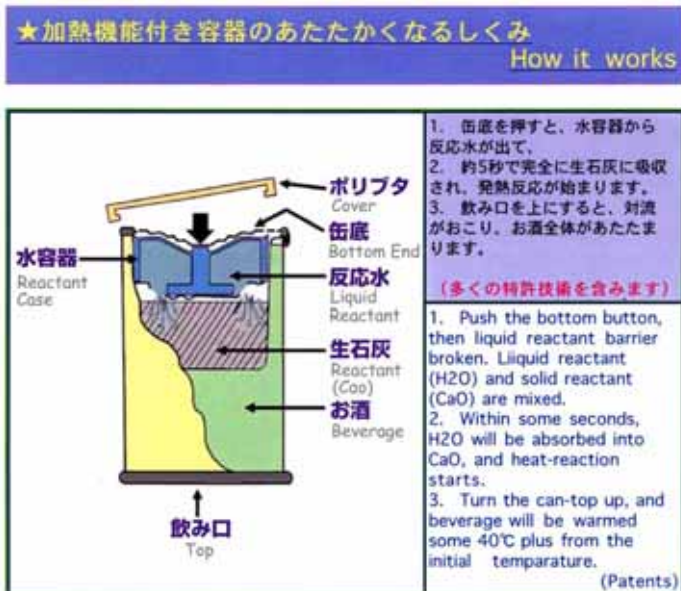
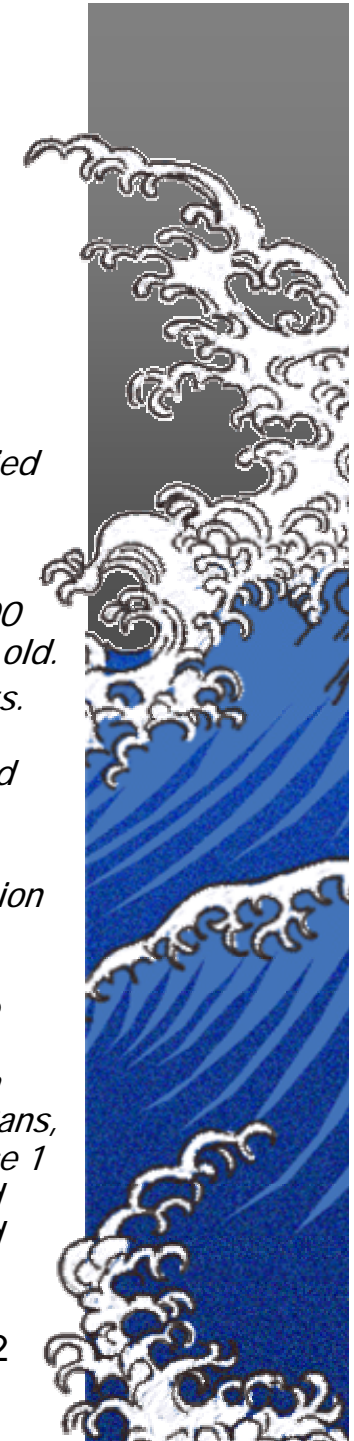


illustration from our web site



Frequently asked questions...

Q: Recycle of the package?

A: The Self-Heating Can is constructed by aluminum (can body, top, bottom, heating chamber), plastic-aluminum laminated film (water chamber), label and lime (after reaction, it goes to $\text{Ca}(\text{OH})_2$). If the container put into the aluminum recycle system, because plastic/film/label will be burned out, so no bad effect in a furnace. Lime is one of usual additive for an aluminum recycle furnace. However, it should be considered under a regulation of each countries.

It is true that Self-Heating Can is not simple aluminum or PET, but constructed by multiple materials, which means rather difficult for material recycling. But, we must consider the balance of "recycling cost" and "value of very unusual performance (self-heating)".

Q: Filling machine cost?

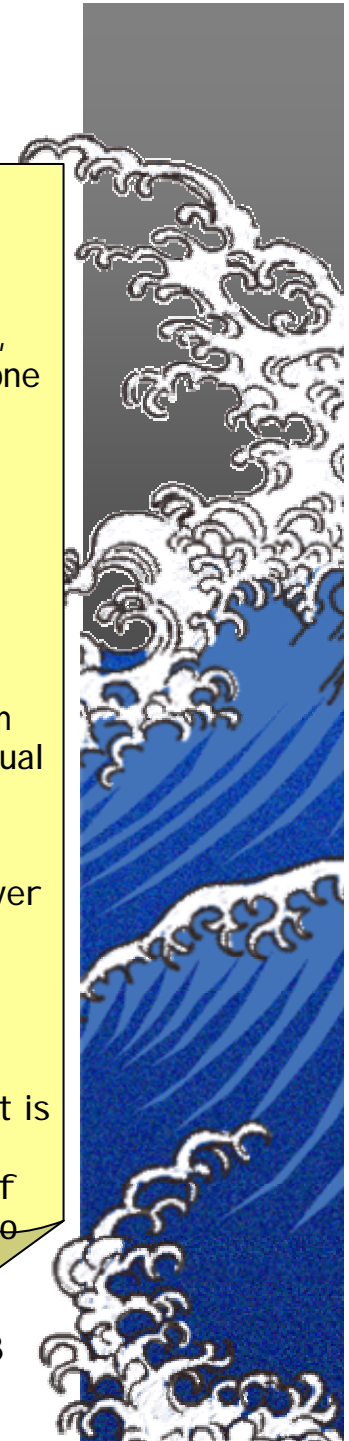
A: It is filled and closed by usual canning machine, the top size is #211. For small/medium production, we can provide 1500-2000 cph filling/seaming monoblock machine and manual can-seaming machine.

Q: Really safety?

A: We, Kita Sangyo started to produce Self-Heating Can in 1986, and we have produced over 40 million cans until now. Our Self-Heating Can factory in Osaka has a certificate of ISO9002 quality system. We can proudly say that our system is now the most safe system in the world. (see **PANEL 1**)

Q: Can't make more worm, or worm more than 180ml?

A: "Initial temp. plus 40 (control range +0, -5) degrees Celsius" is our standard setting. It is true that if you start in very cold temperature, people wants more worming, however, many of consumer actually use indoor in winter, in which case +40 is very adequate. If people start indoor, and if the can goes to +45 degree, it is too hot to touch your lip to can. We decide the specification on a balance of heating ability and safety.



PANEL 1: Evidence of Safety;
Over 40 million can production from 1986, and ISO9002



▲ 2001年1月の累計生産4000万缶の記念写真 / 40-million-th Self-Heating Can was launched on January 2001.



▲ 加熱機能付きのお酒 / Japanese Sake in Self-Heating Can



▲ 二酸化塩素を利用した自動車用加熱蒸気脱臭剤・殺菌剤 / One-Push chlorine dioxide steam deodorizer / sanitizer for automobile

- We, Kita Sangyo has over 15 years experience of Self-Heating Can, from 1986. We supply the can of “Kanban Musume”, which is the top bland Sake Self-heating Can. We have top share in the market.
- We have produced over 40 million cans until now. Our Self-Heating Can factory in Osaka has a certificate of ISO9002 quality system.
- Toyo Seikan Kaisya Ltd., the biggest can manufacturer in Japan, manufactures aluminum parts, and supplied to Kita Sangyo. Toyo Seikan and Kita Sangyo also cooperate together in total quality system of Self-Heating Can.
- As an applied products of Self-Heating Can, we are producing “One-Push, chlorine dioxide steam deodorizer/sanitizer for automobile (“Deo Magic”).
- We can proudly say that our system is now the most safe system in the world.



▲ 本社（大阪）工場加熱機能付き容器の生産ライン / Production line of Self-Heating Can



Fact sheet, and Positive points...

☺ Japanese Market

In the first stage, i.e. mid. 80s –early 90s, the self-heating can market was around 10 millions per year. It was used for not only Sake but also coffee, tea, water for baby's milk, etc. After mid. 90s, the market had been shrunken because of some reasons; "global warming" (in case of Japan, winter was continuously very warm in every year after mid 90s), serious economy recession, and rather high pricing for non alcoholic beverages, etc. Nowadays, Japanese Sake is a main Self Heating Can customer, and the retail price is 300-400 Yen, which is approx.100-150 Yen higher than usual Sake without self heating feature. The market size is constantly approx. 5 millions per year. (see PANEL 2/omitted on web. version) Very stable market is existing, such as out-door use, CVS channel.

☺ International movement

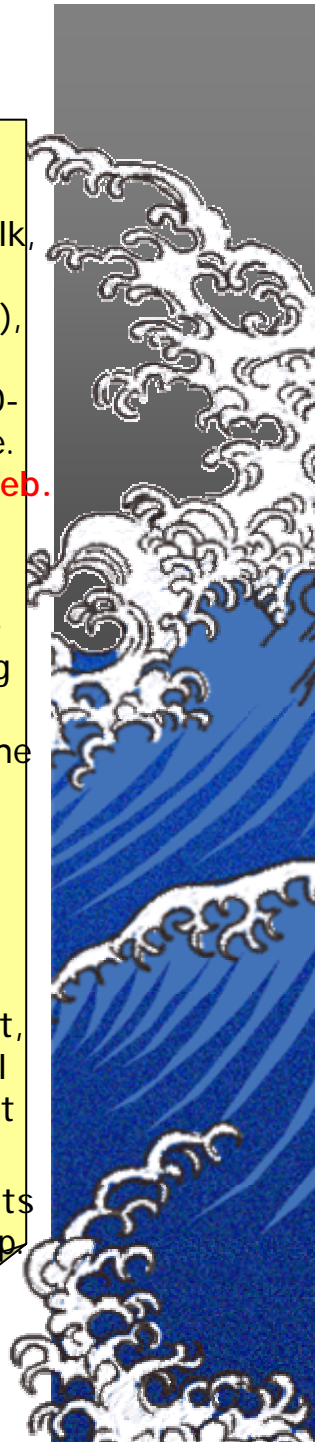
See PANEL 3. In 2001, Nestle launched self heating canned coffee in the UK. In the US, ONTRO, a venture company based in California, and some others have been developing self heating and self cooling can. In Italy, self-hot chocola and self-cool coffee are commercially sold in the market. Self heating/chilling can is now very closed-up for a niche market with high price tag, in the developed countries.

In these countries, package recycling issue is strictly considered, however, self heating container, which looks difficult to recycle, may be recognized as a special item.

☺ Especially good for Hot Alcoholic Beverage!

Hot wine and hot whiskey ("hot toddy") are loved in Europe, especially nice in cold winter. Japanese Sake and Syocyu are traditionally served in warm. Considering the package cost, we especially recommend our Self Heating Cans for alcoholic beverage. It has a potential market not only for ski resort, fishing, mountaineering, etc, but also for indoor use market in winter.

(Note) We basically ship Self Heating Can with pre-assembled heating device. This accepts hot-filling at around 70-80 degree C. In the case of retort required item (very high temp. treatment after filling), we must assemble after contents are filled in the can.



PANEL 3 : Self Heating/Chilling is recently closed up in the world.



Nestle launched "Hot You" coffee in the UK in 2001, developed by Thermotic Development. Picture: Nestle's and Kita Sangyo's. The dimension is very similar. Lime contents (approx. 70 grams) are also very similar.



Tempratech, a US company, is developing self chilling can. (source: website of Tempratech)

ONTRO, a NSDAQ stock market listed company, have been developing self heating with all plastic made container for several years. (source: website of ONTRO)

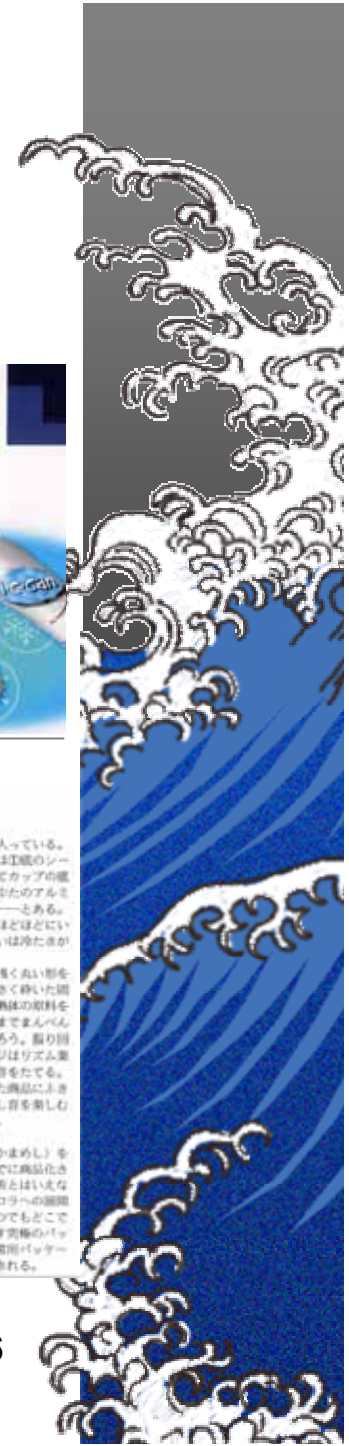


Hot chocola and cool coffee, activated by shaking (Nikkei newspaper 2001/10/31)



だが、飲み物のペットは保温や保冷容器に入れても温度を保つ時間には限界がある。その欠点を補う「いつでもどこでも冷たく、あるいは熱く」が可能なパッケージをメーカーはパラライヤ (Deristalia)。中身は温かいショコラと冷たいコーヒーだ。仕掛けは簡単、ポリプロピレン (PP) で二重構造にしたカップの底に空気中の酸素と結合して熱く、あるいは冷たくなる原料が入っている。イラスト入りの説明では工場のシールを破り混ぜることでカップの底をもってよく振り回した分のアルミシールをはがして飲む。振り回して40秒ほどでほどほどにいい感じの温かさ。あるいは冷たさが手に伝わる。カップの内側の底は塊状の原料を砕いておろす。おろす小さく砕いた原料の塊状体あるいは発熱体の原料をたやすく容器の隅々にまでまんべんなく移動させる配慮だろう。振り回している間、パッケージはリズム楽器のマラカスのような音をたてる。子供をターゲットにした商品にふさわしく、縦横に振り回し音を楽しむパッケージでもあった。

日本では酒や茶類 (かまめし) を温めるパッケージがすでに商品化され、きほど打割しい技術とはいえないが、コーヒーやショコラの温度はまだ聞かない。「いつでもどこでも」という飲料がめざす究極のパッケージのひとつで、非常用パッケージとしての応用も期待される。





“Self-Heating Can” will build up new and niche market.

< Summary >

- *“Kanaban Musume”, a Sake with built-in self heating system, was appeared in 1985, and the self heating can has been loved in Japan for almost 20 years. It’s main market is, thru. CVS (convenience store, like Seven-Eleven, Lawson, etc.) and outdoor use, very stable market.*
- *“Sake” and “Syocyu (Japanese distilled sprit)” are traditionally served in warm. Hot wine and hot “toddy” are also loved in Europe in winter. We especially recommend our Self Heating Can for alcoholic beverage.*
- *Looking the world market in recent years, self heating/chilling package have been paid much attention for building new market.*
- *We, Kita Sangyo, has approx.20 years experience in Self heating Can system, and has the biggest share in Japan. We have manufactured over 40 million Self Heating Cans, and have ISO 9002 certificate. If you consider Self Heating Can, we can provide our products, know-how and technology. **Contact us!!***

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2002/5/31

presented by Kita Sangyo Co., Ltd.

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(Appendix) Self Heating Can history digest, picture edition #1

All pictures herein, taken by Kita Sangyo. 2002/05/13



The pioneer was "Kanban Musume", a 180ml Sake with self heating feature, launched in 1985. The basic label design is same until now. Heating was activated by spiking the bottom by a pin. The container was supplied by Ueda Sekkai, a lime company. Kita Sangyo supplied composite can, (inc. 250ml size, right) and ez open lid.



Looking in the world,,, Right: In mid. 1980s. "Turkey Curry" by HotCan Limited in the UK. Left: In mid. 1990s. "Copy" of Kita Sangyo's was appeared in China. Each parts ware copied from ours, but couldn't work well, and looks dangerous in some special case.

From 1986 to 89, Kita Sangyo, and some others, such as Toppan, Dainippon, Daiwa Can, Ozo Kagaku, started to develop/produce self heating can in their own detail design.



From mid. 80s to early 90s, various heating/cooling package were developed. Two boxes are hot "Syumai" and lunch box. Bigger can is "Supper Boil" noodle by Nissin, which is heated by metal powder. Smaller can is self chilling Sake can, developed by Gekkeikan/Daiwa Can.



(Appendix) Self Heating Can history digest, picture edition #2

*Ki ta
Sangyo' s
hi story
di gest*



*All pictures herein,
taken by
Kita Sangyo.
2002/05/13*

1. Our first one was **"Atsuko San"**, a hot syocyu. Spiking pin was attached under cover.
2. **"NihonSakari"**, a composite can self-heating can. We are now using metal container with heat insulating label.
3. **"Tamon"**, flexible heat-seal lid, which absorb inner pressure while heating.
4. **"Ume"**, **"Hotate"**, **"Bancya"**(pictured), "Fugu-Hire", "I ka" etc,,, various Japanese traditional Sake-based-cocktails ware tried as a premium segment.
5. **"AGF Maxwell" coffee**, launched in 87. The world first retorted coffee with self heating feature. We sold approx. 1 million cans in one winter season, however the retail price (sold at 250 yen, 150 yen higher than usual canned coffee) was considered too expensive at that days, and stopped in the next season.
6. A big white container; an applied products of self heating can. **Injector needle disposal container with sanitizing** feature by lime/water heating.
7. The left one is **"J&B" whiskey (hot toddy)**, which was tested in 99 by UK company. Very small quantity was shipped to European Ski resort for test marketing purpose.

Self Heating Can history digest, chronological edition; omitted in English Edition

End of Report



2002/5/31

presented by Kita Sangyo Co., Ltd.

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