HMC Polymers 35TH ANNIVERSARY

Recover

# WHAT ARE THE ALTERNATIVES ?

***Waste which cannot be recycled sustainably should be used as an energy soource,thereby generating an additional 300 TWh of electricity and heat each year, enough to:***

provide **30** million people with electricity, heating and cooling

save **70** million barrels of crude oil used in industrial production, e.g.of cement

substitute **23%** of Europe's gas import from Russia

or replace over **300** coal power stations

## ENERGY RECOVERY - A COMPARISON

### *THAILAND*
***An Expanding Waste Problem***

- A huge volume of plastic trash floats in the oceans worldwide
- A large patch now sits off Chumpon's coast
- Thailand is one of the world's worst polluters of plastic waste
- Plastic waste in Thailand is increasing at 12% pa, or around 2 million tonnes

**Thailand's waste issues are now critical**

- Recycling of household waste is almost non-existent
- Single use plastics are being disposed of incorrectly
- Plastics do not readily break down and often float

**Reduce, Reuse, Recycle, RECOVER approach needed**

- Recycling infrastructure is in its infancy
- No effective recycling culture or priority in Thai society as in the EU

**> Energy recovery could create energy from waste while recycling infrastructure is established**

### *SWEDEN*
***A Recycling Revolution***

- Sweden recycles or recovers nearly 100 per cent of its household waste
- Only 38 per cent of household waste was recycled in 1975
- Few other nations deposit less in rubbish dumps

**Swedish households separate for reuse, recycle or compost:**

- Paper products
- Plastic
- Glass
- Bio waste

**Waste to Energy**

- 50% of household waste in Sweden is incerated to produce energy
- The smoke from incineration consists 99.9 per cent non-toxic carbon dioxide and water
- Heavy metal emissions have been reduced by 99% since 1985

### *POLYPROPYLENE*
***Perfect for Recycling***

- HMC support's the 4R's philosophy of waste management along the value chains for our products
- Polypropylene can be infinitely recycled
- Polypropylene can be incinerated for energy with no harmful gases
- HMC supports government and industry bodies to promote plastics recycling and recovery

**HMC product improvements such as stiffer and tougher polymers, enable our customers to produce packaging with lower wall thicknesses - thereby achieving material reductions at the source.**

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# ZERO PLASTICS TO LANDFILL BY 2025

***Stopping the landfilling of recyclable and other recoverable waste,including plastics, by 2025 in Europe brings economic and environmental benefits***

In 2014,

**8** million tonnes (mt) of plastics ended up in landfills

=

The weight of **800** Eiffel Towers

Making use of the **100** million barrels of oil needed to produce these plastics

=

**50** large oil tankers

€

Worth **8** million Euro

=


**1.3x** the EU budget for tackling youth unemployment

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Recycle

# CONTAINER DEPOSIT LEGISLATION

## How it works

Container path

CONTAINER

Refund and handing fee path

10¢

**Consumer**

- Buys beverages (price includes deposit and handling fee)
- Returns empty container to collection depot for refund

10¢ CONTAINER

10¢ CONTAINER


SHOP

**Retailer**

- Buys beverages from supplier, price includes 10 cents refund and handling fee
- Sells beverage to consumer, price includes above costs


**Collection depot**

- Pays consumers 10 cent refund
- Has contract with super collectors for reimbursement of refund and is paid a handling fee
- Sends emply containers to super collectors for recycling

10¢ CONTAINER

Drink Maker Pty Ltd

10¢

**Beverage supplier (manufacturer/distributor/importer)**

- Containers must be approved by the EPA before selling
- Has contract with a super collector
- Declares SA sales and pays 10 cents plus handlingfee to the super collector
- Sells beverage at a price which includes the above costs

CONTAINER 10¢

CONTAINER

**Super Collector**

- Collects empty containers from collection depots
- Pays collection depots 10 cents plus handling fee
- Sells recycleable material to market
- Has contracts with beverage suppliers

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# PLASTICS ARE VALUABLE

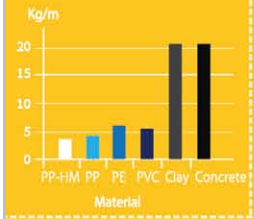
## →Film (Terpolymer grades/low SIT – lower seal temp, faster speed) →Lower SIT)

→Lower SIT, lower energy usage Conventional PP vs Terpolymer

| | Cast Film / barefoot | BOPP/ barefoot | Anti-block |
|---|---|---|---|
| SIT 115°C | **Clyrell RC221M**<br>• High seal strength<br>• Excellent optical properties<br>• Suitable for sealing layer | **Clyrell RC6081**<br>• High seal strength<br>• Optimized processability on BOPP lines<br>• Suitable for sealing layer | **Clyrell RC6049**<br>• High seal strength<br>• Excellent optical properties<br>• Suitable for sealing layer and metallized layer |
| SIT 105°C | **Adsyl 6064**<br>• Good hot tack performance • Excellent optical properties<br>• Superior processing on high speed packaging machines<br>• Suitable for sealing layer | | **Adsyl 6093**<br>• Good hot tack performance<br>• Superior processing on high speed packaging lines<br>• Suitable for sealing layer |

## →Pipe (H5416T, H2483) →Lighter weight

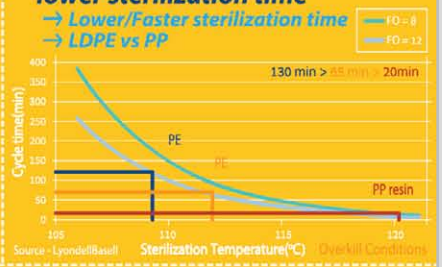
Lowest Specific Weight




## →Medical grades →Lighter weight, lower sterilization time

→ Lower/Faster sterilization time

→ LDPE vs PP




## →Automotive part →Lighter weight

→Steel part vs PP part

1950ies and 60ies
Steel bumpers + other data

1970ies and 80ies
First PP bumper
Weight 5.5 kg
Impact resistance down to -30C
at a speed of 4 km/h

2000 years
Integrated bumper
Weight 3.5 kg
Impact resistance down to -30C
at a speed of 7 km/h
On average 70 kg of PP per car

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# PLASTICS ARE VALUABLE

## During the production and the use phase

PLASTIC PACKAGING IS LIGHTER THAN ALTERNATIVE MATERIALS, THEREBY

- Saving energy
- Reducing $CO_2$ emissions
- Saving resources

**50%** of all European goods are packed in plastics

However, plastics account for only **17%** of all packaging waste

PLASTIC PACKAGING HELPS PREVENT FOOD WASTE.

*Modern packaging increases Parmesan cheese shelf life from 20 to 50+ days*


PLASTIC REDUCE THE VOLUME AND WEIGHT OF PACKAGING:

**88** grammes alternative materials

**22** grammes plastics

Average packging weight for 1 kg of product

Using plastic packaging for all product would:

reduce by around **800kg** an average truck load

Save up to **2 litres** of diesel per 100 km

Decrease **5kg** of $CO_2$ per 100 km

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# PLASTICS ARE VALUABLE

## TOTAL REUSE POTENTIAL

**>20%**

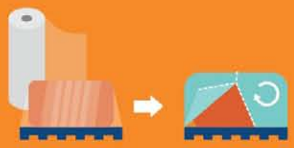
OF PLASTICS PACKAGING MARKET

PERSONAL AND HOME CARE BOTTLES **5%**

CARRIER BAGS **3%**

BEVERAGE BOTTLES **2%**

PALLET WRAPS **7%**



LARGE RIGID PACKAGING **3%**


OTHER REUSE OPPORTUNITIES (E.G. E-COMMERCE PACKAGING)

**?%**

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ReuseQ

# PLASTICS ARE VALUABLE

## REUSE IDEAS

### Pencil/Marker Organizers

### Outdoor Chandelier

### Cute Planters

### Cute Planters

### Garden kit

### Simple Bird Feeder

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