

THE CANCER ASSOCIATION OF SOUTH AFRICA'S POSITION STATEMENT ON CANCER AND THE ENVIRONMENT

FACT SHEET ON CLING WRAP PLASTICIZERS

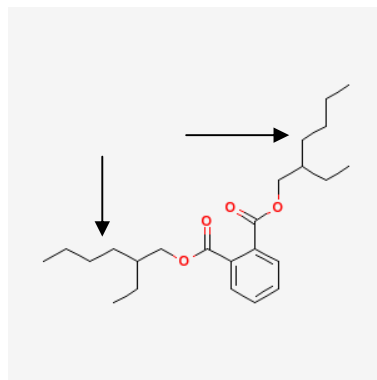
WHY SHOULD I CARE ABOUT CLING WRAP PLASTICIZERS?

- Because cling wrap plasticizers such as di-ethyl-hexyl-phthalate (DEHP) and di-ethyl-hexyl-adipate (DEHA) are man-made, organic chemicals that migrate out of certain cling wraps into fatty food such as minced meat, chicken and cheese and are absorbed into the cells of the human body¹.
- Because this process of plasticizer migration is speeded up considerably at higher temperatures such as are found in a microwave oven when frozen meat is thawed².
- Because DEHP and DEHA cause liver cancers in mice and rats³
- Because numerous studies have linked DEHP to adverse biological effects, such as:
 - Acting as a testicular toxicant⁴, causing anti-androgenic (anti-masculine, feminising) effects⁵
 - Possibly causing early puberty in girls⁶
 - Affecting genes that could lead to cancer^{7,8,9,10}
 - Disturbing glucose and insulin biochemistry¹¹
 - Disturbing fetal development¹²
 - Disturbing estrogen metabolism¹³
 - Decreasing testosterone in workers in contact with DEHP¹⁴
 - Large scale dysregulation of genes in tissue culture¹⁵
 - Disturbed hormone stress control¹⁶
- Because the EU has banned a group of phthalates used to soften children's toys following health concerns for damage to the reproductive system, asthma and cancer¹⁷.
- Because DEHA acts on the brain of rats causing a feminization effect¹⁸
- Because DEHA acts on "master" genes involved in diabetes, atherosclerosis and the immune response^{19,20,21}
- Because there is a correlation between the concentration of urinary phthalate metabolites, increased waist circumference and insulin resistance²²

WHAT ARE CLING WRAP PLASTISIZERS?

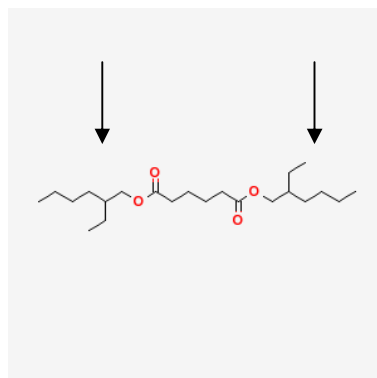
- Plasticizers for plastics are additive, most commonly phthalates and adipates, that give hard plastics like PVC the desired flexibility and durability. Plasticizers work by embedding themselves between the chains of plastic polymers, spacing them apart (increasing of the "free volume"), thus making them softer. Some plasticizers evaporate and tend to concentrate in an enclosed space; the "new car smell" is caused mostly by plasticizers evaporating from the car interior.

WHAT DO PLASTICIZERS A LOOK LIKE?



Di-ethyl-hexyl-phthalate

DEHP



Di-ethyl-hexyl-adipate

DEHA

- These are completely unnatural molecules that have been made by man. Both molecules have a "branched" ethyl-hexyl-structure (arrows). DEHP is more biologically active than DEHA but DEHA has a higher migration potential than DEHP.



WHERE ARE DEHP AND DEHA PLASTICIZERS FOUND?

- Cling wrap (DEHP has been replaced by DEHA).
- DEHP in soft children's toys
- Cosmetics
- Shampoos
- Soaps
- Lubricants
- Pesticides
- Paints
- In the urine of more than 75% of Americans²³
- Medical devices
- Shower curtains
- Adhesives
- Perfumes
- Sex toys
- Plastic tubing
- As of 2004, manufacturers produced about 363 million kilograms of phthalates each year. This is about 55 grams of phthalate per every man, woman and child on earth, per annum. (Based on world population of 6.6 billion).
- Phthalates are ubiquitous contaminants of the global environment.

WHAT SOURCE OF PLASTICIZERS POSES THE GREATEST THREAT?

- Migration from a DEHA or DEHP-containing cling wrap into fatty food in a microwave oven.
- Contamination of drinking water²³

HOW CAN THE POTENTIAL CANCER RISK OF DEHP AND DEHA PLASTICIZERS BE REDUCED?

- Banning of products that contain these molecules where there is a real danger of absorption into the human body, e.g. soft children's toys, cling wrap for fatty food.

- Choosing alternative products that do not contain plasticizers.
- Purifying drinking water to remove plasticizers such as DEHP and DEHA²³

WHY DO MANUFACTURERS LIKE TO USE DEHP AND DEHA PLASTICIZERS?

- Out of patent
- Relatively cheap to make
- Good softeners of hard plastic
- Make plastic film sticky, e.g. to wrap uncooked chicken
- Antioxidant in plastics
- Colourless, tasteless, odorless.

SELECTED QUOTATIONS:

- ***The evidence on phthalates is strong enough for the European Union to have banned them in children's toys, and last October California governor Arnold Schwarzenegger signed legislation, to take effect in 2009, setting stringent limits on the concentrations of phthalates in child-care products for children under age 3. The ban focuses on soft baby books, soft rattles, plastic bath ducks, and teething rings. Several other states are considering similar legislation.***
- ***"If plastic harms, it does so by stealth: by mimicking our own hormones, by scrambling signals during development, by stimulating pathways excessively. And it may have the power at astonishingly low exposure levels, amounts that by typical toxicological measures look just fine. With plastic, less may be more, and a little may be a lot."***

Jill Neimark in Plastic People of the Universe, DISCOVER, May 2008, pg 48.

- ***"We should base legislation on two rules. One, if a synthetic chemical accumulates in your body and is not metabolised, let's ban it unless we need it for survival. Why? On the precautionary notion that it can't be good for the body to be a storage site for junk chemicals with no known physiological purpose. Two, if a chemical is biologically active and interacts with our receptors, it's probably no good. Ban it. Maybe it's OK in small doses, but it's going to take you 50 or 100 years to figure out those doses, if you can even do it. We put a human being in prison for life based on circumstantial evidence. Yet we're looking for more than circumstantial evidence in order to ban these chemicals".***

Sheldon Krimsky, Tufts University environmentalist in DISCOVER, May 2008, pg.51.

- *“...these associations would suggest that phthalates, a widely used family of chemicals, may contribute to the prevalence of obesity, insulin resistance, and related clinical disorders”*

Richard W Stahlhut, University of Rochester School of Medicine (Ref. 22 this document)

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