

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

FACT SHEET ON SMOKE

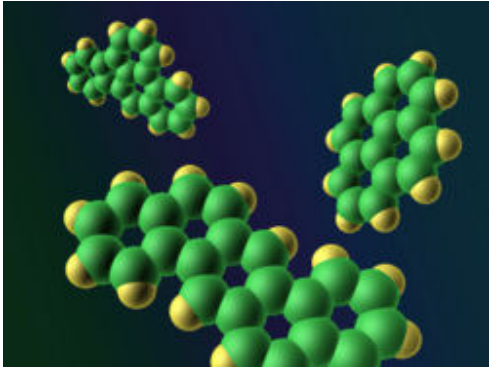
WHY SHOULD I CARE ABOUT SMOKE?

- Because all kinds of smoke from burning plant material contains carcinogens.
- Because cigarette smoke causes 30% of all cancers
- Because smoke from burning wood, coal and petrol also contains polyaromatic hydrocarbons such as benz[a]pyrene which is a known carcinogen.
- Because millions of rural South Africans are exposed to smoke from burning wood and coal on a daily basis due to poor ventilation in huts and township shacks.
- Because the cancer threat of this exposure has not been ascertained yet.
- Because millions of urban South Africans are exposed to motor car emission gasses for considerable periods every day due to traffic congestion and the effect of this in terms of cancer is not known.

WHICH CARCINOGENS ARE PRESENT IN SMOKE?

- There are many different carcinogens in smoke but the most important category is polyaromatic hydrocarbons (PAHs).
- PAH's can be point source pollutants (e.g. oil spill) or non-point source (e.g. atmospheric deposition) and are one of the most widespread organic pollutants. Some of them are known or suspected carcinogens, and are linked to other health problems. They are primarily formed by incomplete combustion of carbon-containing fuels such as wood, coal, diesel, fat, tobacco, or incense. Tar also contains PAHs. Since human civilization relies so heavily on combustion, PAHs are inevitably linked to our energy production. In this sense, PAH can be thought of as marker molecules as their abundance can be directly proportional to combustion processes in the region and therefore directly related to air quality. Different types of combustion yield different distributions of PAHs in both relative amounts of individual PAHs and in which isomers are produced. Thus, those produced from coal burning are different from those produced by motor-fuel combustion, which differ from those produced by forest fires. Some PAHs occur within crude oil, arising from chemical conversion of natural product molecules, such as steroids, to aromatic hydrocarbons.

WHAT DOES A PAH LOOK LIKE?



PAHs are 6-membered carbon atom rings (aromatic rings) attached to each other (usually 5 rings) and hydrogen atoms. There are no oxygen molecules

WHAT POSES THE GREATEST THREAT IN TERMS OF SMOKE?

- Whereas cigarette smoke is recognised as a cancer threat, other kinds of smoke are largely ignored and may be causing cancer.

HOW CAN THE POTENTIAL CANCER RISK OF SMOKE BE REDUCED?

- Cigarette smoking must be discouraged using every legal avenue available.
- More research needs to be done on the chemistry of wood smoke in rural areas such as the Eastern Cape and “Township smoke” in SOWETO in order to measure the levels of carcinogens such as benz[a]pyrene.
- Demographic research (cancer maps) need to be constructed to ascertain whether rural exposure to wood smoke is associated with nasal, oesophageal or lung cancers and the same for coal smoke in SOWETO.
- If scientific proof can be found that smoke is causing cancers in the case of wood and coal smoke, attention must be focused on reducing the contact of humans with this smoke by means of alternative methods of making fires (from the top down instead of from the bottom up), better ventilation with chimneys .
- All new motor cars must be fitted with catalytic convertors that drastically reduce the PAH concentration in emission gasses.