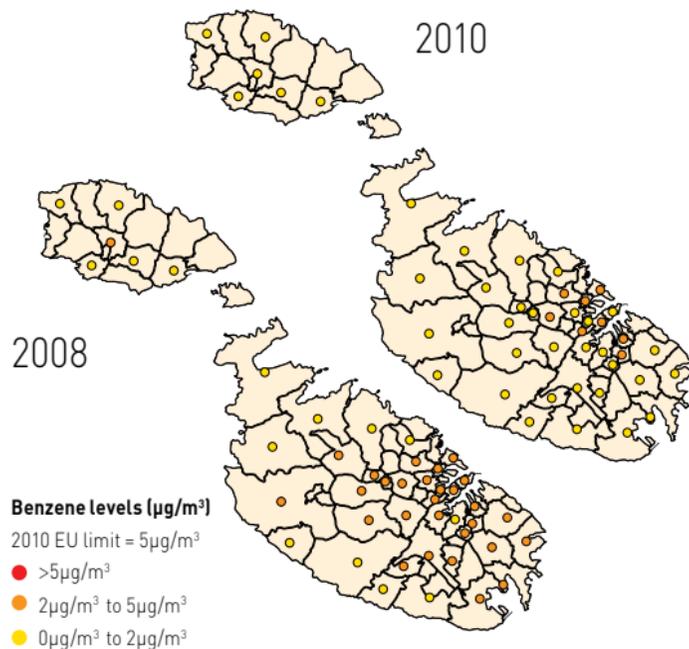


A3 CONCENTRATIONS OF BENZENE AND OTHER VOLATILE ORGANIC COMPOUNDS

 **Key policy question:** Do concentrations of benzene and other volatile organic compounds meet EU air quality standards?

Volatile Organic Compounds (VOCs) are airborne compounds that cause respiratory irritations and other genetic and nervous disorders, depending on various factors such as length of exposure. They are either emitted due to incomplete and inefficient combustion,¹⁹ or evaporate directly into the atmosphere. They are present in many products containing solvents, such as paints, varnishes, cleansers, disinfectants and automotive products.²⁰ VOCs are also ozone precursors.²¹ MEPA monitors the VOCs known as Benzene, Toluene, Ethylbenzene and Xylenes (BTEX) using 131 diffusion tubes in 44 localities, as well as through automatic analysers at Msida, Żejtun and Gharb. Benzene is mainly a result of incomplete combustion of petrol.²² It is carcinogenic and mutagenic²³ and is considered to be harmful in any dose.²⁴ Average annual concentrations of benzene declined by 32.5% between 2008 and 2010,²⁵ from $2.3\mu\text{g}/\text{m}^3$ to $1.6\mu\text{g}/\text{m}^3$, reflecting the decline in benzene levels in almost all localities, with the greatest decrease recorded in Lija [52% between 2008 and 2010]. This decline is most likely due to lower benzene content in imported gasoline. Similar to previous years, in 2010 no locality average exceeded the EU limit value of $5\mu\text{g}/\text{m}^3$ (not to be exceeded by 2010), and the lowest benzene concentration, of $0.9\mu\text{g}/\text{m}^3$, was recorded in Dingli. The highest benzene concentration was recorded at Valley Road, Birkirkara [$4.5\mu\text{g}/\text{m}^3$], decreasing slightly from $4.6\mu\text{g}/\text{m}^3$ in 2008. Toluene, ethylbenzene and xylenes are monitored due to



Source: MEPA

their potential to form ozone. Annual average ambient concentrations of the solvent toluene decreased by 54.5% from $16.1\mu\text{g}/\text{m}^3$ in 2008 to $7.3\mu\text{g}/\text{m}^3$ in 2010. No recommended limits are available for ethylbenzene and xylene. The annual ambient concentration of ethylbenzene in 2010 was $2.2\mu\text{g}/\text{m}^3$, compared to

$3.6\mu\text{g}/\text{m}^3$ in 2008, while annual ambient concentrations of mp-xylene and o-xylene were $6.5\mu\text{g}/\text{m}^3$ and $2.2\mu\text{g}/\text{m}^3$ respectively in 2010, down from the $9.7\mu\text{g}/\text{m}^3$ and $3.9\mu\text{g}/\text{m}^3$ concentrations in 2008. The reduced annual ambient concentrations of the above pollutants are also possibly linked to lower concentrations in imported gasoline.