

Sulphur Compounds

Beverage Industry



The food and beverage industry implements stringent guidelines on the quality of carbon dioxide utilised in products for human consumption. Organo sulphur compounds are extremely odourous and can cause tainting to product. Bottled carbon dioxide (CO₂) can sometimes contain impurities. The most common impurities are acetaldehyde, methanol, ethanol, hydrogen sulphide, carbonyl sulphide and sulphur dioxide. Organo sulphur compounds can also be present in alcoholic beverages such as wine and beer. The presence can be due to the degradation of sulphur containing amino acids. The table below demonstrates the sulphur compounds that can be present in beer at ppb and ppm levels. The impurities can produce off-odours or flavours and as the products age the sulphur species impurities can modify and impact shelf life and future value. In some cases, sulphur compounds add characteristic tastes and aromas to foods. Through examination of these compounds at various stages in either the growth or processing of beverages you can reveal the keys to improving the final product.

Table 1

Volatile sulphur containing compounds found in beer at ppm to ppb levels.

Hydrogen sulphide	Ethyl mercaptan	Dimethyl disulphide
Isopropyl mercaptan	t-butyl mercaptan	Isobutyl mercaptan
Carbonyl sulphide	Sulphur dioxide	Carbon dioxide
Methyl ethyl sulphide	Sec-butyl mercaptan	n-butyl mercaptan
Methyl mercaptan	Dimethyl sulphide	t-amyl mercaptan
n-propyl mercaptan	Diethyl sulphide	

Speciated sulphur analysis by Gas Chromatography - Sulphur Chemiluminescence Detector (GC-SCD) can identify odours, flavours, and delineate natural versus synthetic flavours or identify imposters. The SCD allows sulphur compounds to be measured at extremely low levels in comparison to other techniques. The SCD also provides selectivity and is not subject to response quenching from hydrocarbon matrices. Leeder Consulting can also offer analysis of volatile organics in CO₂ including benzene.



Quality Assurance and Quality Control are primary considerations when undertaking food analysis. Leeder Consulting is AS/NZS ISO 9001 Certified, the laboratory is NATA Accredited, a Registered Quarantine Laboratory and "Appointed Analyst" under the Commonwealth Imported Food Control Act.

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