

Hazy wine & crazed cats

Problems solved with an Aussie backyard machine



Inside an atomic absorption spectrometer, a flame is used to atomise the sample to determine which elements are present.



Along with taste and colour, larger wine companies may also test their wines for the presence of metal atoms. Copper and iron will make the wine hazy and potassium can cause a crystalline deposit.

Your glass of sparkling white wine has been tested to ensure that it is absolutely clear. The presence of metal atoms can cause haziness, which winemakers test for using an atomic absorption spectrometer.

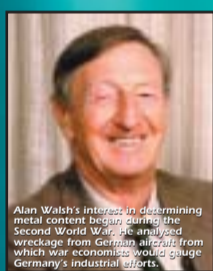
In 1956 in Minamata, Japan, cats started frothing at the mouth, throwing fits and eventually suicided by jumping into the sea. Spectrometry revealed mercury had contaminated the fish that the cats—and people—had eaten.

EUREKA!

In suburban Melbourne in 1952, chemist Alan Walsh jumped to his feet in his vegie patch exclaiming: “We’ve been measuring the wrong bloody thing!”



Used in mineral exploration, soil analysis, metallurgy, food analysis, environmental monitoring and medical research, atomic absorption spectrometers are found in virtually every laboratory in the world.



Alan Walsh's interest in determining metal content began during the Second World War, when he analysed wreckage from German aircraft from which war economists would gauge Germany's industrial efforts.

At the time, scientists measured the light emitted from a sample to determine what elements were present. Alan instead measured absorption, and made what has been described as the most significant advance in **chemical analysis** in the twentieth century.

Atomic absorption provides a quick, easy, accurate and highly sensitive method to determine the concentrations of more than 65 of the known elements.

He started producing machines in his backyard as DIY kits. The operation grew and today **atomic absorption spectrometers** are found in virtually every laboratory, hospital and factory around the world measuring trace elements in blood, urine, plants, minerals, engine oil and wine.

WHAT NEXT?

The latest Australian development is the Inductively Coupled Plasma orthogonal Time-of-Flight Mass Spectrometer.

The ICP spectrometer can measure every element and isotope in seconds and in parts per trillion, compared with measuring one element at a time in the parts per million range.¹

1. GBC Scientific Equipment Pty Ltd (www.gbcscli.com)