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A collaboration between C&EN and
Andy Brunning, author of the popular
graphics blog *Compound Interest*

Coke and cola: Soda's chemical history

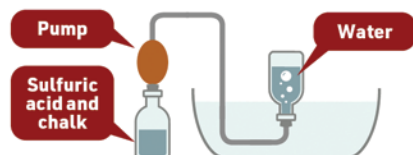


Did Coca-Cola really contain cocaine? In this graphic, we highlight unexpected compounds our favorite sodas once contained and explore how water is carbonated.

A history of carbonating water

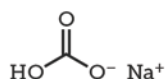
1767 First artificial carbonation

The English scientist Joseph Priestley noticed that water left above vats of fermenting beer became fizzy. Later, in 1772, he published a method for carbonating water by dripping sulfuric acid onto powdered chalk, producing carbon dioxide, which could then be infused into water.



1783 The Geneva system

German Swiss scientist Jacob Schewpe developed the Geneva system, which carbonates water by dissolving carbon dioxide in water under pressure. Added sodium bicarbonate tempered carbonated water's acidity and lent it the name *soda*.



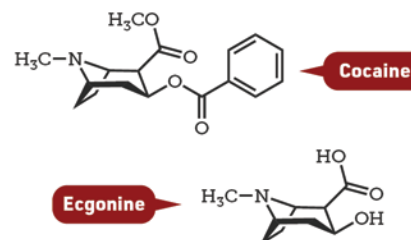
Today Pressurized injection

Today, manufacturers make carbonated water by injecting high-pressure carbon dioxide gas into water. Carbon dioxide is more soluble in water at high pressure than at low pressure.



Coke and cocaine

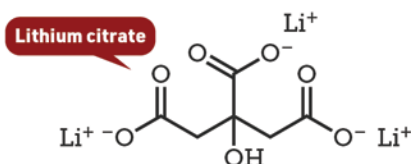
Coca-Cola's original 1886 formulation was made from extracts of coca leaf and kola nut. Coca leaf extract contains ecgonine alkaloids, including trace quantities of cocaine.



Since 1929, the company has made Coca-Cola with a cocaine-free coca leaf extract.

7Up and mood stabilizers

7Up's original name was Bib-Label Lithiated Lemon-Lime Soda. Launched in 1929, it contained small quantities of lithium citrate until 1948.



Lithium compounds are used as a treatment for depression and bipolar disorder, but 7Up was originally advertised as a hangover cure.



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