PETRICHOR

The Smell of Rain

What is Petrichor?

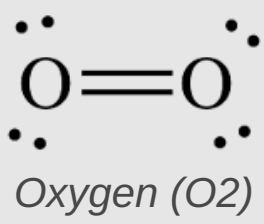
Petrichor is the term coined by Australian scientists in 1964 to describe the unique, earthy smell associated with rain. It is caused by the water from the rain, along with certain compounds like ozone, geosmin, and plant oils.

Source: http://bit.ly/1SuALTT

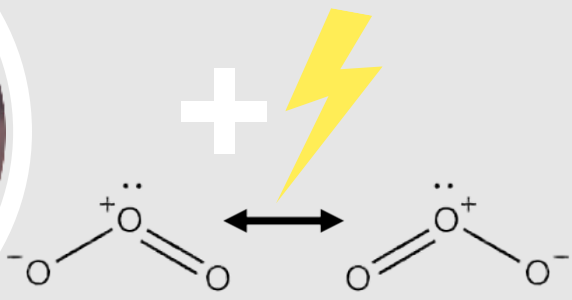
Ozone

When lightning strikes, diatomic molecules of oxygen and nitrogen (containing 2 atoms) are split, and rearrange to create **nitric oxide** (NO) and **ozone**, or O3. Ozone molecules are carried down by droplets of rain to contribute to the scent.

http://1.usa.gov/1rWDogS

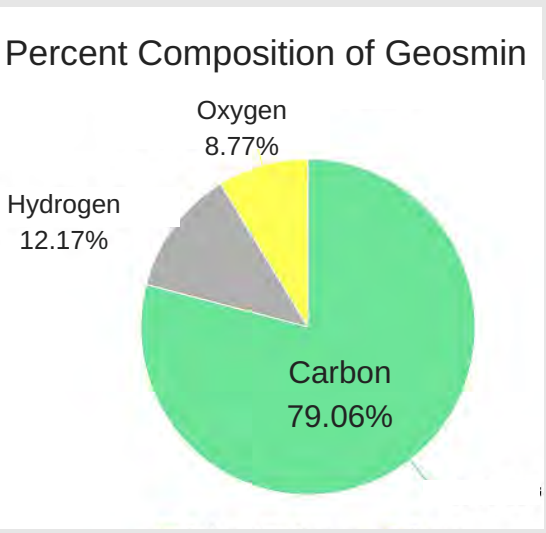


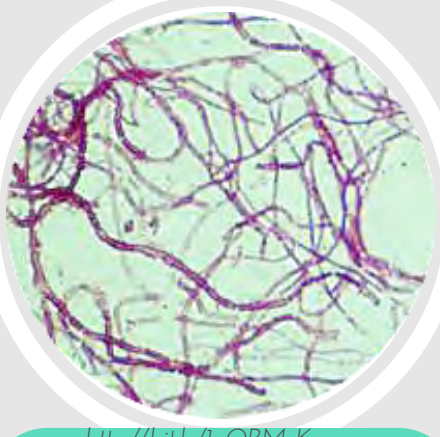
Oxygen (O2)



Ozone (O3)

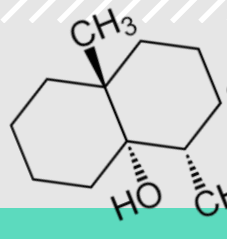
and Lightning





http://bit.ly/1nOBMcK

Actinomycetes, a type of bacteria found in soil, secrete a compound called **geosmin**, which is released from soil into the air by raindrops. Geosmin in the air can be detected by the human nose at less than 5 parts per trillion



Geosmin (C12H22O)

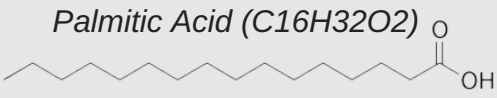
Geosmin

During dry weather, plants produce compounds that accumulate in between rocks and in soil. When it rains, these compounds are released into the air to add to the earthy smell of petrichor.

Stearic Acid (C18H36O2)

and

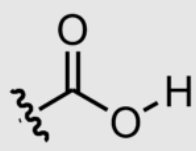
Palmitic Acid (C16H32O2)



http://bit.ly/1LIRBJi

Stearic acid and palmitic acid are common plant oils. They are **fatty acids**, long hydrocarbon chains with a carboxyl group on one end and a methyl group on the other.

http://bit.ly/1nKLMD2



Carboxyl Group

http://bit.ly/1SwmdmB

Methyl Group

Volatile Plant Oils

Sources:

http://bbc.in/1ICzmT8 http://bit.ly/1rAJanV
http://bit.ly/1PXRdv9
http://bit.ly/1klGFph
http://1.usa.gov/20d92WN

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