A waveform measures amplitude (y-axis) as a function of time (x-axis). The waveform of a pure tone can tell us about the frequency of the tone and period. An example of a waveform is a sinusoid wave.

A spectrum measures amplitude (y-axis) as a function of frequency (x-axis). The spectrum of a complex tone can tell us about the harmonics and component frequencies that make up the complex tone, a waveform cannot do this without applying Fast Fourier analysis.

Aperiodic sounds, which contain all frequencies will have a continuous spectrum.