

How to find zeolites from fly-ash? Give details about techniques and related protocols and procedure how we can detect zeolite?

Answer: You cannot find zeolites into the fly-ash, because ash is just a raw material for zeolite synthesis.

For example, coal fly ash (CFA) can be used for zeolite synthesis by fusion method. Ash is mixed with NaOH (with ratio of 2.25) and treated under 450°C. Synthesized zeolite can be characterized using various techniques i.e. X-ray fluorescence (XRF), X-ray diffraction (XRD), and BET surface area analysis. Surface area of zeolite, synthesized by this method will be in the range of 60 m²/g. Form of such zeolite will be Sodium Aluminum Silicate Hydrate (1.08Na₂O·Al₂O₃·1.68SiO₂·1.8H₂O). Such zeolite provides comparable performance to the commercial-grade molecular sieve.

Also, you can read scientific articles about the zeolite synthesis from the fly-ash, e.g.:

<http://digital.csic.es/bitstream/10261/27292/1/44973.pdf>

http://www.sustz.com/Proceeding09/Papers/Technical%20studies/D_GEORGIEV.pdf

<http://www.ias.ac.in/matserci/bmsdec2004/555.pdf>

http://www.kona.or.jp/search/24_183.pdf