Lubricant oil odor-profile classification using case based reasoning intelligent classification method

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ABSTRACT
Lubricant Oil is one of the products from the crude petroleum refinery process. The implementation of lubricating oil automotive sector is very crucial to make sure the smoothness of moving parts in the vehicles engine. The smoothness of engine of vehicles influence the performance of vehicle at the highest level. Common method used by public to determine the aging level of lubricant oil is by checking the mileage meter mounted on the vehicles dashboard. In the world of research, researchers used various methods and instruments such as ICP-MS, AAS and so on. However, these methods involved the complex sample preparation, complicated procedures and costly for installation and maintenance. In order to avoid these difficulties, e-nose is used in order to classify the aging level of the lubricant oil with simpler sample preparation, less experimental procedures and lower cost compare to other instruments. The signal processing technique is implemented in order to process the raw data in order to make sure the data in a very good condition for features extraction phase. The important information that known as odor-profile then will be used for classification using Casebased Reasoning Intelligent Classification method. From this research, 100% classification result is obtained.

KEYWORDS
Lubricant oil; E-Nose; Quadratic mean; Odor-profile; Case-based reasoning

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