

여수국가산단 및 주변지역 악취발생 원인조사

Investigation on the Cause of Odor in Yeosu National Industrial Complex and Its Surrounding Area

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Abstract

The purpose of this study is to understand the current status and cause of the distribution of odor substances in the Yeosu National Industrial Complex and its surrounding areas. Samples were analyzed by collecting 90 samples at dawn, daytime and night from a total of 15 points, 9 points in the management area, 2 points in the boundary area, and 4 points in the affected area. The analysis items include 5 meteorological factors, complex odor, 22 types of the designated odors and other Volatile Organic Compounds (VOCs). At the MA3 (Fig. 1) point in the management area, the strict emission allowance standard for complex odors was exceeded three times, Ammonia, two types of sulfur compounds, two types of aldehydes, and six types of VOCs were detected, but they were within the standard. As a result of by calculating the odor contribution, the contribution of 74.9 % or more was found at the point where butyraldehyde was detected. Therefore, in order to prevent odors at the Yeosu Industrial Complex, measures to reduce aldehydes with high odor contribution should be prioritized, and it is necessary to simultaneously investigate through real-time harmful atmospheric measurement vehicles. Based on the contents presented in this study, if the system and policies reflecting the results of the odor occurrence survey of Yeosu National Industrial Complex and surrounding areas are supplemented, the odor environment of Yeosu National Industrial Complex will be sufficiently improved.

Keywords : Yeosu national industrial complex, Petrochemical industrial complex, Complex odor, Designated odor substances, Odor contribution, Odor activity value

I. 서론

여수국가산업단지는 세계 최대 규모의 종합석유화학단지로서 293개(2021년 9월 기준)의 업체가 입주해 있고 그 중 석유화학업종이 45.4%(133개)를 차지한다.¹⁾

석유화학단지 특성상 휘발성유기화합물을 중심으로 다양한 악취유발물질이 배출되고 있으며 이에 따른 잦은 민원이 발생하였다. 악취로 인한 불편 해소를 위해 종합적인 악취 환경을 개선하고자 2019년 5월 2일 전라남도 고시 제2019-152호에 따라 악취관리지역으로 지정되었다.

악취란 황화수소, 메르캡탄류, 아민류, 그 밖에 자극성이 있는 물질이 사람의 후각을 자극하여 불쾌감과 혐오감을 주는 냄새를 말한다.

악취방지법에서는 배출허용기준과 엄격한 배출허용기준으로 복합악취와 지정악취물질에 대한 기준을 설정하여 관리하고 있다. 복합악취는 두 가지 이상의 악취물질이 함께 작용하여 사람의 후각을 자극해 불쾌감과 혐오감을 주는 냄새를 말한다. 지정악취물질은 악취의 원인이 되는 물질로서 암모니아, 트라이메틸아민, 황화합물류 4종, 알데하이드류 5종, 휘발성유기화합물류 7종, 지방산류 4종으로