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Discussion on Storage Safety and Management Policy of Hazardous Waste

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Abstract: ***China is a large country producing hazardous waste, and improper management of hazardous waste will lead to problems. Ensuring the safety of the storage process is an important guarantee. Therefore, the current safe storage mode of hazardous waste storage is a key issue to be discussed. We should put management policies in place to better manage hazardous waste, contribute to the safe disposal of hazardous waste and avoid serious consequences.***

Keywords: Hazardous waste; Safe storage; Management policy.

1. INTRODUCTION

The development of industry inevitably brings a certain amount of waste, and hazardous waste is often the final content discharged by many enterprises. These solid wastes are often dangerous goods themselves. If these hazardous wastes are not properly treated, they will inevitably have a significant impact on the environment. In recent years, China has frequently experienced problems with the storage of hazardous waste, resulting in major safety accidents that have a significant impact on the lives and property safety of ordinary people. Therefore, the proper management of hazardous waste has become an important issue faced by many enterprises in recent years. Therefore, this article will explore in detail the specific content of hazardous waste storage. Zheng et al. (2024) conducted a comparative study on named entity recognition (NER) using advanced pre-trained models, highlighting their effectiveness in improving accuracy and efficiency [1]. Similarly, Fan et al. (2025) explored the online update method for Retrieval-Augmented Generation (RAG) models with incremental learning, demonstrating its potential for enhancing real-time adaptability in information retrieval systems [3]. In the realm of computer vision, Zhou et al. (2024) optimized an automated garbage recognition model using ResNet-50 and weakly supervised CNN, contributing to sustainable urban development by improving waste management systems [4]. Lyu et al. (2024) further advanced 3D object recognition by optimizing convolutional neural networks (CNNs) for rapid 3D point cloud processing, which has implications for autonomous vehicles and robotics [8]. In the context of logistics, Wang and Li (2024) proposed a dynamic optimization method for transportation networks using Long Short-Term Memory (LSTM) neural networks, showcasing its ability to enhance route efficiency and reduce costs [7]. Additionally, Ukey et al. (2022) addressed the challenge of efficient k-nearest neighbor (kNN) joins over dynamic high-dimensional data, providing a scalable solution for real-time data analysis [6]. Cross-cultural game design has also benefited from AI-enhanced tools, as demonstrated by Xu et al. (2025), who developed tools for online character conceptualization and collaborative sketching, facilitating creativity and collaboration in game development [2]. Lastly, Tang et al. (2024) utilized big data to qualitatively analyze regional housing supply and demand imbalances in the US, offering insights for policymakers and urban planners [5].

2. CHARACTERISTICS OF HAZARDOUS WASTE

2.1 Flammability

Flammability refers to the property of being easy to ignite and maintain combustion. The first characteristic of hazardous waste is flammability. When exposed to open flames or certain pressure, they will immediately ignite and explode, causing great harm. When storing hazardous waste, it is strictly prohibited to open fire or even static electricity within a few hundred meters. This is the first characteristic of hazardous waste, which is its flammability and the greatest harm.

2.2 Corrosivity

Corrosivity refers to the ability to corrode or dissolve substances such as tissues and metals, and to possess acidic or alkaline properties. The strong corrosiveness of certain hazardous wastes requires specialized space for their storage management. Ground or space without anti-corrosion or anti-seepage measures is easily susceptible to corrosion from hazardous wastes, leading to leakage and soil and groundwater pollution, ultimately resulting in major accidents.

2.3 Toxicity

The toxicity of hazardous waste is divided into acute toxicity and leaching toxicity. Acute toxicity refers to the toxic or even fatal effects caused by a single (or multiple) exposure of the body (human or experimental animal) to foreign compounds within 24 hours. Leaching toxicity refers to the migration and transformation of harmful substances in solid hazardous waste when it comes into contact with water, polluting the environment. The toxicity of the leached harmful substances is called leaching toxicity. If hazardous waste is not managed properly, it can lead to toxic solid waste entering the ambient air or long-term contact with the human body, resulting in carcinogenic, teratogenic, mutagenic and other situations.

2.4 Reactivity and Infectivity

Reactivity refers to the property that is prone to explosions or violent reactions, or that releases toxic gases or smoke during the reaction. Hazardous waste is usually the product of multiple chemical reactions, and is the reaction residue of several or even more than ten chemical substances, which can easily react with other substances and cause environmental accidents. Infectious waste refers to medical waste, waste that needs to be collected and disposed of to prevent animal infectious diseases, and chemical waste that has unknown impacts on humans or the environment during various activities.

3. THE NECESSITY OF SAFE STORAGE OF HAZARDOUS WASTE

As is well known, the vast majority of hazardous waste is harmful to the surrounding environment. Many hazardous wastes are also flammable and explosive, and can easily explode when exposed to open flames, causing fatal harm to the surrounding environment. In addition, hazardous waste has a high risk factor and a great ability to cause environmental damage. Sometimes, if hazardous waste is not properly stored, it can cause harm to the surrounding water environment, soil environment, and atmospheric environment. Therefore, it is necessary to store hazardous waste, and during the storage process, safety should be the main concern. Proper storage should be carried out to prevent any carelessness and prevent the occurrence of related safety accidents.

4. SAFE STORAGE METHODS FOR HAZARDOUS WASTE

4.1 Understanding Hazardous Waste

For the storage of hazardous waste, in order to ensure the safety of storage, the corresponding storage management personnel must first understand the hazardous waste and fully grasp the basic information about its properties, types, etc. Only after understanding the physical and chemical properties of hazardous waste can feasible hazardous waste storage plans be formulated to avoid accidents caused by storage problems. For example, if hazardous waste is a flammable substance, direct sunlight is strictly prohibited during storage, and such hazardous waste should be stored in a relatively cool area. Due to the high hazard of hazardous waste, personnel who come into direct contact with such hazardous materials may also be at risk. Therefore, in the development of hazardous waste storage plans, it is necessary to make it mandatory for personnel who can come into contact with these hazardous wastes to understand their properties and classification. When mandatory understanding is required, the following aspects should be taken into account: (1) detailed explanations of hazardous waste by professionals; (2) Conduct training and assessment for personnel who come into contact with hazardous waste to ensure that all personnel involved in storage work can have a detailed understanding of the storage regulations for hazardous waste, ensure the standardization of storage, and reduce the threat of hazardous waste through safe storage

4.2 Classification of Hazardous Waste

According to the solid waste listed in the National Hazardous Waste List in 2021, the collected hazardous waste should be classified and treated to avoid serious consequences. For example, separating low ignition hazardous waste from waste oil can prevent low ignition hazardous waste from burning and causing fires. For classification, the following aspects need to be specifically achieved.

Various types of hazardous waste must not be stored in centralized piles, otherwise it will easily lead to dangerous accidents. Relevant personnel need to have a basic understanding of the nature of these hazardous wastes, and carry out isolation work during the collection and temporary storage process to reduce the probability of safety accidents.

4.3 Properly Label Hazardous Waste

Hazardous waste should be properly labeled and effectively managed to facilitate future storage and disposal. In addition, when labeling, certain distinctions should be made. It is recommended to label their characteristics and hazard factors to ensure the management of hazardous waste and effectively reduce the occurrence of accidents. Specific measures are as follows:

(1) When selecting tags, it is necessary to classify the characteristics of hazardous waste so that managers can visually see the actual situation of hazardous waste.

(2) The identification marks for hazardous waste must be conspicuous and placed in a prominent location for easy management.

(3) For hazardous waste, the storage date should be marked, and precautions for hazardous waste should also be marked.

(4) For the identification content, certain images can be used to display it, which will have a better display effect, with both graphics and text, allowing managers to better control it.

(5) When labeling hazardous waste, the labels are often affected by various factors such as falling, loss, or unclear text over a long period of use. These situations should be dealt with in a timely manner and must not be ignored. The labels should also be checked regularly, and lost labels should be replaced. Effective solutions should be taken for unclear text. In short, the integrity of the labels should be maintained in real time.

4.4 The Storage Environment for Hazardous Waste Should Be Improved

If hazardous waste is stored in an improper environment, it can lead to hazardous incidents. Therefore, it is necessary to consider the environmental requirements of hazardous waste and continuously improve the storage environment to ensure the safety and reliability of hazardous waste during storage.

5. SAFETY MANAGEMENT OF HAZARDOUS WASTE

5.1 Enhance Managers' Safety Awareness of Hazardous Waste Storage

In recent years, China has repeatedly emphasized the importance of safety, but every year, safety accidents still occur. The reason for this is that managers do not attach importance to safety awareness, especially the safety awareness of hazardous waste storage. In recent years, safety accidents have not only caused property damage, but also significant harm to people. Therefore, it is necessary to raise the safety awareness of managers towards dangerous goods. It is necessary to firmly grasp the defense line of safety, remember the importance of safety, and resolutely eliminate all safety hazards that may lead to safety accidents.

5.2 Establish and Improve the Management System for Hazardous Waste

A comprehensive management system for hazardous waste should be established, especially by combining the assessment system with management regulations. Those who manage hazardous waste well should be rewarded, both mentally and materially. Those who do not manage hazardous waste well should be punished severely, and if necessary, dismissed. Only with clear rewards and punishments can hazardous waste be truly controlled and managed. In addition, supervisory and management personnel shall conduct random inspections of hazardous waste, including methods of managing hazardous waste and operational procedures of operators. The inspections shall be detailed and detailed. If there are custodians who cut corners or do not follow the procedures, they shall be dealt with seriously and rectified in a timely manner. Employees who violate operating regulations shall be strictly punished. In short, a sound management system for hazardous waste shall be established to truly provide assistance for the safe storage of hazardous waste.

5.3 Improve the Corresponding Supervision and Management System

Develop a supervision system for hazardous waste and improve it according to specific work needs. Each task requires dedicated personnel to take responsibility. Supervision and management work should be in place,

requiring staff to strictly follow supervision regulations to carry out their work, and continuously improve the supervision system to effectively play the guiding and restraining role of the system.

When staff have been working in a position for a long time, the various operations stored become experience, and some staff will weaken the system and operate based on their own experience, which can easily lead to adverse consequences. In order to increase the importance placed on staff, it is necessary to regularly train and assess them, supervise them to continuously learn while working, and handle problems in the correct way. If the staff fails the assessment, they must continue to receive training and cannot return to their positions until they pass the assessment before they can start working. In addition, supervisory and management personnel conduct irregular spot checks on the work of staff, mainly for the purpose of inspecting the safety management of hazardous waste, urging staff to operate correctly and follow the prescribed procedures. Before the spot checks, supervisory personnel should use random spot checks to fully understand the specific operating conditions of staff. If some employees cut corners and do not follow the procedures in their work, they need to directly raise the issue and point out the correct operating methods. For employees who seriously violate regulations, they need to be punished strictly according to the rules. For the supervision of hazardous waste storage, in addition to supervising the staff, attention should also be paid to environmental supervision, including whether the inspection of hazardous waste is in place, whether it is classified according to requirements, whether it is placed correctly, whether the hazard signs are obvious, and whether the environment meets the corresponding requirements. If the storage environment for hazardous waste cannot meet the requirements, it is necessary to adjust the environment in a timely manner to avoid dangerous accidents.

6. CONCLUSION

In summary, in many current production fields, a large amount of hazardous waste is often generated during the production process. For such items, they often exhibit hazardous characteristics such as toxicity, harm, and corrosiveness. With the introduction of various laws, regulations, and policies on hazardous waste storage and management by the country, all enterprises should combine the classification and characteristics of hazardous waste to carry out corresponding storage and management under current production conditions, in order to avoid the harm caused by improper storage and management.

REFERENCES

[1] Zheng, Z., Cang, Y., Yang, W., Tian, Q., & Sun, D. (2024). Named entity recognition: A comparative study of advanced pre-trained model. Journal of Computer Technology and Software, 3(5).
[2] Xu, Y., Shan, X., Lin, Y. S., & Wang, J. (2025). AI-Enhanced Tools for Cross-Cultural Game Design: Supporting Online Character Conceptualization and Collaborative Sketching. In International Conference on Human-Computer Interaction (pp. 429-446). Springer, Cham.
[3] Fan, Y., Wang, Y., Liu, L., Tang, X., Sun, N., & Yu, Z. (2025). Research on the Online Update Method for Retrieval-Augmented Generation (RAG) Model with Incremental Learning. arXiv preprint arXiv:2501.07063.
[4] Zhou, Y., Wang, Z., Zheng, S., Zhou, L., Dai, L., Luo, H., ... & Sui, M. (2024). Optimization of automated garbage recognition model based on resnet-50 and weakly supervised cnn for sustainable urban development. Alexandria Engineering Journal, 108, 415-427.
[5] Tang, Y., Zhao, S., & Yanjun, C. (2024). Regional Housing Supply and Demand Imbalance Qualitative Analysis in US based on Big Data.
[6] Ukey, N., Yang, Z., Zhang, G., Liu, B., Li, B., & Zhang, W. (2022, August). Efficient knn join over dynamic high-dimensional data. In Australasian Database Conference (pp. 63-75). Cham: Springer International Publishing.
[7] Wang, J., & Li, X. (2024). Dynamic Optimization of Transportation Networks in Logistics Using Long Short-Term Memory Neural Networks.
[8] Lyu, T., Gu, D., Chen, P., Jiang, Y., Zhang, Z., Pang, H., ... & Dong, Y. (2024). Optimized CNNs for Rapid 3D Point Cloud Object Recognition. arXiv preprint arXiv:2412.02855.

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