

# AN OVERVIEW OF HALAL FOOD PRODUCT CONTAMINATION RISKS DURING TRANSPORTATION

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**ABSTRACT:** *This study attempts to discuss the issues of cross contamination risks of outbound logistics of halal food products in the context of transportation and handling procedures managed by Halal Logistics Services Providers (LSP). This paper describes the issues of food product contamination risks involved in halal food product during transportation and the importance of managing product contamination risks through a proper handling and segregation. Recently, the issues of halal food has attracted public attention as well as Malaysia's local authority especially on the Halal Toyyibban issues as there is risks of cross contamination along the supply chain process of halal food product. In order to comply with halal status, halal logistics service companies need to maintain the element of product segregation between halal and non halal product during transportation, storage and distribution process. The main purpose of this paper is to review issues pertaining to halal food product contamination risks faced by logistics companies during the transportation and distribution process of halal food product. In order to maintain the halal status of food products in the supply chain process Halal logistics services companies are governed by the legal and standard requirement such as Food Act 1983, Food Hygiene Regulation 2009, ISO 9001, Malaysia Standard of MS1500:2009 and MS2400:2010 that covering from food production, transportation, warehouse and retailing.*

**Key Words:** Contamination risks, Halal Food Industry, Risk Management, Halal Logistics Services

## 1. INTRODUCTION

Nowadays, the integrity of halal food supply chains is becoming an increasing concern in the market [1] Everybody are becoming more concern and aware of the food product that reach to them. The halal food production and the delivery processes must comply with the halal food supply chain standard and requirement. Simultaneously, in order to achieve the standard of the halal food product delivery processes, the halal food product should be handled by logistics service companies that have been certified halal by The Department of Islamic Development of Malaysia (JAKIM). Nevertheless, there are some of the logistics activities involved are handled in-house. Currently, there are 31 logistics companies in Malaysia that have been certified as halal logistics with certification of Halalan Toyyiban Assurance Pipeline Management System (MS2400:2010) Part 1 for Transportation and Part 2 for Warehousing (Halal Development Corporation, 2015). The numbers of logistics companies with Halal logistics certifications would increase due to the increase of awareness and readiness on the importance halal logistics standard (MS2400:2010) and the willingness of the companies to practice halal logistics [2] [3]. Indeed, Halal integrity are the most important factor that need to be adopted by the industry players in order to ensure a smooth Sharia' compliant process of halal food supply chain. Halal food supply chain process involved manufacturers, transport operators, warehouse operators and distribution centres as well as retailers that are connected to each other. Therefore, integration among these entities becomes one of the key factors for a successful working chain. In this situation, halal food manufacturers and halal logistics providers are legally bonded with the requirement outlined by The Department of Islamic Development of Malaysia (JAKIM) and procedures of the Department of Standard and other governance bodies. Halal integrity issues are also more likely to occur due to increasing complexity of the supply chain process that require higher attention on among the industry players. Therefore, the industry players

especially halal logistics companies need to develop and maintain a good business ethics and integrity in dealing with halal food business [4][2]. The transition process to halal compliant business possess a major challenges for the business operation since the companies need to deal with major changes in the overall company operation [5]. One of the good examples is the needs to invest on the equipment, facilities and workers training on the halal segregation process.

Manzouri [6] define halal supply chain as the management of a halal network with the objective to extend the halal integrity from original source to the point of consumer purchase. In order to ensure that the product is truly halal at the point of consumer purchase, a high degree of dependent should be placed on the principles of the management of halal supply chain among all the parties involved. Mariam and Latiff [7] defined Halal Logistics Services Provider as logistics company and warehousing services that already been certified with halal status by The Department of Islamic Development of Malaysia (JAKIM) and comply with Sharia' requirement in term of their operation and services. In addition with food safety standard, Halal food production and logistics process needs a carefully planned activity involving strategies, SOP's, Work Instruction and specification in food process and control based on Sharia' compliance . Hence, a food is considered as halal if it is halal throughout the whole food production chain ranging from production, transportation, storage to retailing [8]. Based on the current situation, halal food supply chain has been exposed with many risks that would affect the halal food supply chain integrity. The risks involved in halal supply chain will increase the possibility of the food products turned from halal to haram [9,10] . Indeed, Halal logistics services providers play an important role to ensure the integrity of the halal food supply chain process through the sharia' compliant handling in transportation and warehousing services. Therefore, it is very important to determine the halal food product contamination risks during transportation to ensure the food

products delivered are safe, hygiene and free from any non halal element that can affect the halal status of the food products [11]. Moreover, the risk identification will further help to improve the company sustainability and standard of operation (SOP's).

## 2. LITERATURE REVIEW

### Scenario of Halal Food Supply Chain and Regulatory Framework

#### Halal Food Industry

The development of halal food industry in Malaysia provides an opportunity for Malaysia food manufacturers to gain profit in their businesses. In view of its development, in year 2005 the potential value of halal food product range between USD600 billion to USD 2.1 trillion (Industrial Master Plan 2010, Ministry of International Trade and Industry). In Malaysia the contribution of the halal food processing industry to the country's total manufacturing output has increased from 6.1% in 2010 to 8.25% in 2005 (Industrial Master Plan 2010, Ministry of International Trade and Industry). Currently, the local food processing industry in Malaysia is dominated by Small Medium Enterprise (SME) companies with more than 80% companies followed by 20% of Multi National Company's (MNC's) companies located in Malaysia (Ministry of International Trade and Industry, 2012). As for today, Malaysia's halal food manufacturing industry is considered as the fastest growing global business across the world. Malaysia's food manufacturers can literally behold joint ventures with established food manufacturers particularly from Australia, New Zealand and Japan to service the Asian, Middle East, European and US market which have sizeable Muslim population (Asian Insider, July 2014).

Malaysia has a sizeable halal food market with enormous growth potential of 60% of consumers being Muslim. The fast developments of halal food product had increased the complexity of halal food supply chain and at the same time increase the risks for the product and business as well. The risks involved in halal supply chain can be categorized according to the flow of supply chain process of the food production starting from the food production until it reached the end users[12,13]. The risks of food product contamination can happen at any stages in supply chain process starting from food processing, packaging, transportation, warehousing and retailing. In food processing and packaging, the risks of food contamination will happen if the manufacturer did not practice the hygiene and cleanliness aspect in the food preparation, equipment used, housekeeping and material handling [14]. In term of logistics services, food product contamination risk happened due to lack of awareness and readiness in halal logistics policy and practices.

#### Regulatory Framework for Halal Food Industry in Malaysia

Currently, the quality and standard of halal food product are governed by the mandatory act of food safety legislation such as Food Act 1983 and Food Hygiene Regulation 2009. The other policies and standards are made optional by the Government to improve the safety, quality and halal

compliance of the food processed. The optional certification includes Makanan Selamat Tanggungjawab Industri (MESTI), Hazard Analysis Critical Control Point system (MS1480:2007), Good Manufacturing Practices (MS1514:2009), International Standard of Organization (ISO), Halal Food Production, Preparation, Handling and Storage –General Guidelines (MS1500:2009) and Halalan Toyyiban Assurance Pipeline Management System Part 1- Transportation; Part 2 Warehousing; Part 3- Retailing (MS2400:2010) by Department of Standard and Halal certification requirement from The Department of Islamic Development of Malaysia (JAKIM). Food safety standard is controlled by the Ministry of Health (MOH) with support from other governance body that is also responsible on the development of halal food products. Other governance bodies that are involved in the food safety standard and halal certification are Kementerian Perdagangan Dalam Negeri Koperasi dan Kepenggunaan (KPDNKK) and Jabatan Perkhidmatan Veterinar (JPV).

The Department of Islamic Development of Malaysia (JAKIM) is the only government institution that is responsible for the halal certification for food products along with the assistance from Jabatan Agama Islam Negeri (JAIN) and Majlis Agama Islam Negeri (MAIN). In this situation Jabatan Agama Islam Negeri (JAIN) and Majlis Agama Islam Negeri (MAIN) are responsible on the halal audit and inspection to the food factory and food services according to the each state and district area. In addition, JAKIM will certify and approve the halal certification based on the audit report from both institutions. Audit and inspection to the food premises are being carried out to ensure the food products companies are following the policy and procedure of halal food products manufacturing process. Malaysia government through the Parliament enacted certain Act such as Trade Description Order 2011, Food Act 1983, Food Regulation 2009 and Consumer Act which provide a legal provision of the halal food production. Generally, these Acts enacted as a protection to consumer and food manufacturer in terms of business trade and industry practices of halal food. The Acts and regulation enables the consumer to purchase halal food products without any doubt on food product halal status. Simultaneously, the Acts and regulations also help the manufacturers and logistics services providers to perform business according to the right business ethics and conducts.

#### Halal Logistics Industry in Malaysia

Halal logistics is basically the process of managing the procurement, movement, storage and handling of materials, part of livestock and semi-finished inventory both food and non-food and related information, and documentation flows through the organization and the supply chain in compliance with the general principles of sharia' law[15]. While halal food transportation plays a major role in protecting the Halal status of food product through proper transportation, storage and handling within the supply chain until it reaches its final destination [16]. The main success of the Halal industry depends on the logistics service management in ensuring the integrity of Halal food products supply chain. Halal logistics companies involved in the collection, consolidation, storage

handling, value added, services and traceability system to controls the movement and storage of food products[17]. Currently in Malaysia, there are 31 logistics companies that have been certified as Halal Logistics Companies by The Department of Islamic Development of Malaysia (JAKIM) and MS2400:2010 by standard (Halal Development Corporation, 2015). The main element of services offered by the halal logistics services providers are the segregation of halal and non halal food or hazardous material during the transportation and storage. The segregation process is very important to reduce the risks of cross contamination of the halal food product with non halal products.

Segregation during delivery and storage are the main element of protecting the Halal status of food products throughout the supply chain process [17]. Controls and monitoring in transportation activities is considered as a critical and dedicated task. This is the situation whereby the movements of any transportation mode must comply with the principle of Shariah[18]. The risks of cross contamination of Halal product and turn into non-Halal during transportation would happen if the segregation process is not being monitored effectively during the delivery process. Therefore, to avoid the risks halal logistics companies need to actively monitor and audit the logistics operation daily by referring to the halal policy established by JAKIM and standard of MS2400:2010. The standard of MS2400:2010 of Halal Logistics will provide assurance that the food products are delivered from one custodian to another are in accordance to Shariah' requirement. Halal food manufacturers and logistics companies need to comply with the policy as part of their daily operating and company audit. The guidelines in the policy provide an interrelated standard in term of handling, transportation, storage and personnel with specific emphasis on compliance control[17]. Consequently, the authenticity of halal food products is not only halal at the manufacturing process and packaging but it must be certified halal along the supply chain until the point of only consumption [19][20]. Omar and Jaafar [21]also agree that the consumers are not concerned with the manufacturing process but also the activities along the supply chain including transportation, retailing and warehousing.

#### **Nature of Risks in Halal Food Supply Chain**

Risk can be defined as a probability of damages, injury, liability, loss or any other negative occurrences that is caused by external or internal factors [22]. In supply chain management, risks can be classified into operational risks, supplier risks, product contamination and technology risks which could affect the business performances. In view of the risks of food product contamination and safety issues, Good Manufacturing Practices (GMP) and Hazard Analysis Critical Control Point (HACCP) system have been introduced in food industry in which these two practices have been recognized worldwide. However, [23] stated that the International Standard of Organization (ISO) and HACCP system does not guarantee that the food products is safe and free from contamination due to lack of supply chain integration among all parties along the supply chain process (Food Safety Division, 2014). This is in line with Norizah and Chris

[25]whom mentioned that risks along the supply chain will affect the quality and the product distribution. The risks along the supply chain also would lead to higher chances of cross contamination to halal food product during transportation and storage. This situation happened if there is no monitoring and lack of supply chain integration among all the parties involved. In any case of contamination, halal food product would be recalled and thus affecting the good reputation of the company[14]. Consequently, customers will lose trust to the food producer and therefore reducing sales and profit [26]. Throughout the delivery process, halal food products would also be exposed to other risks as it moves along the supply chain such as in production, packaging and transportation that would affect their company performances, reputation and sustainability.

#### **Risks of Contamination to the Halal Food Product during Transportation**

During the transportation and storage, the risks of food product contamination will happen if there is no proper handling, maintenance and segregation process of the food product. Risks involved in the delivery process of halal products are the situation whereby the halal food product is being exposed to haram product and hazardous product during the transportation and storage (Mohamad, 2014). This situation would occur if the logistics companies do not practice segregation of halal and haram product as well as hazardous and non-hazardous cargo. Ensuring hygiene and cleanliness environment is also important in their daily operation. If this aspect is not being monitored the food products would be contaminated and turned from halal product to haram product before it reaches to the end user. Cross contamination risks are the most important risks that must be managed by all parties along the supply chain process. Cross contamination defined as the physical movement or transfer of harmful bacteria from one person, object or place. In term of halal, cross contamination occurs when halal food product have a direct contact with non halal food or non-food product [14]. Biological, physical and chemical hazards also contribute to the higher chances of cross contamination risks in the manufacturing process and during the transportation process. Beside the major issues of food contamination, food manufacturers and logistics companies were exposed in too many risks that would affect their company performances and reputation.

#### **Transportation Temperature Monitoring**

Noordin [27] emphasized on the importance of temperature monitoring of the food product during transportation to ensure risks of food product contamination and damaged good can be avoided. Food products especially for frozen food and perishable goods rely heavily on the temperature control to maintain the quality, safety and hygiene of the food product. By understanding the sensitive characteristics of halal food product, manufacturers and logistics companies need to invest more on the equipment and facilities on the food preparation and handling procedure. Temperature monitoring is the key essential to maintain the quality and safety of the food product during production and delivery. Keeping product at a certain temperature throughout the

supply chain is a complex task as the various materials have to be considered as well as the arrangement of the products and airflow [9,28,29]. Hence, temperature variations can occur even with a refrigeration system running at a constant temperature if such aspects are not considered [9]. There is a high risk of halal food product contamination if the temperature of the transportation is not well maintained and upgraded according to the food product specification

With regards to the food quality and safety, the sensory qualities are important to consumers. Basic characteristics can be stated for the various types of type of food transported especially for frozen and perishable good. Accordingly, the food product have to be handled with appropriate care to avoid changes in sensory aspects such as colour, texture, taste or appearance [30]. The logistics companies must be alert of any quality and safety issues of food product that could increase the food product contamination risks. Consequently, the logistics companies need to monitor and conduct a regular maintenance of the transportation and the containerization. Correct temperature management is a basic requirement that the company need to practice by maintaining the function of the thermal in the refrigerated container and also based on the shelf life of food product that being loaded during the transportation[31]. The main challenges in temperature monitoring factor is to manage a perishable food products with short shelf life during transportation. In this case, halal logistics companies need to manage the speed and the reliability of the logistics system that requires specialized transportation and storage equipment.

#### **Natural Hazard**

Natural hazard is considered as disruption risk that increases the risks of food contamination along the lead time delivery of the food product. The example of natural hazard are disruption along the journey such as flood, traffic congestion, climate changes, weather changes, wave, fire and other natural disaster that affect the food supply chain process [32]. Disruption risks will cause a delay of the food product lead time delivery and increase the food product contamination as the delivery process will take longer time. Nevertheless, risks of food product contamination would increase if the hazards of biological, chemical, physical, human, environment and equipment are not well monitored by the manufacturers and logistics service providers. Natural hazard is the important risks that need to be monitored effectively especially when dealing with frozen food products and perishable goods that require frequent monitoring and inspection [33].

Natural hazard in food production also relate with "manmade" risk whereby the risk occurs due to ignorance or lack of awareness of the risks involved [9]. According to [34] disruption risks are considered as the major risks that will affect company performances. This is because disruption risks appear without any indication or the occurrence could be considered as "sudden impact". The examples of disruption risks are risks that happened because of threats, natural disaster and hazards. The examples of disruption risks in Malaysia are flood, landslide, heat wave, fire, severe thunderstorm, traffic congestion that will affect the product lead time delivery. In order to mitigate and to prevent the bad

impact from disruption risks, manufacturers need to have a good contingency planning and risk management capability. Risks of delay could occur because of natural hazard that affects the supply chain process starting from the production process to the end consumers or users [35].

#### **Lack of Business Integrity and Appropriate Infrastructure**

The integration between halal logistics services providers and halal authorities is very important to ensure the smooth flow of business integrity and compliances in the halal logistics operation. Zulfakar [5] mentioned on the importance of Halal integrity to ensure that the food products will remain Halal, throughout the whole supply chain process in the present food trade scenario. Nevertheless, to maintain a good business relationship, manufacturers and transport services need to be sincere and responsible on the production process and handling procedure. Halal integrity can be achieve in halal food industry if the food products are being sourced, produced, processed, stored and distributed in a manner coherent with the Islamic values. Therefore, [36] the integration and halal integrity among the food manufacturers and logistics companies can be improved through the establishment of a standard operation procedure which that is based on the risk management framework. Halal authorities such as JAKIM, Halal Development Corporation (HDC) and other authorities need to improve the auditing and the compliance development as to improve the ethics and integrity of halal operation among the industry players. Halal knowledge on standard operation and compliances among the industry players must be developed and improve continuously as to improve the business ethics and integrity. Other main issues on the logistics service provider are lacking of dedicated infrastructure and personnel to handle the halal supply chain transaction [18]. In order to implement halal logistics, the company's management and the operators must understand the halal operational procedure. The company infrastructure, equipment, warehouse, facilities and container must be segregated accordingly and handled by Muslim staffs that have been trained on halal procedure [4]. Training of halal procedure must be conducted continuously to the workers in order to enhance their knowledge and practices on halal product handling in the company premises. Furthermore, to maintain the integrity of the halal product there must be a guarantee that the product are not mixed in one load carrier, trolley and bulk shipment and maintain the right control of temperature [6]. In order to maintain the halal and risks of food contamination, halal supply chain process must be handled by the right person and at the right time and right process. Halal authorities such as JAKIM, Halal Development Corporation (HDC) and other authorities need to improve the auditing and the compliance development as to improve the ethics and integrity of halal operation among the industry players. Halal knowledge on standard operation and compliances among the industry players must be developed and improve continuously as to improve the business ethics and integrity.

### **Lack of Awareness and Readiness for Operational Changes in Halal Logistics**

The risks of food product cross contamination would be increased due to lack of awareness and knowledge among the logistics companies. Therefore, according to [36] the integration and halal integrity among the food manufacturers and logistics companies can be improved through the establishment of a standard operation procedure which that is based on the risk management framework. Other main issues on the logistics service provider are lacking of dedicated infrastructure and personnel to handle the halal supply chain transaction. Halal Food Supply Chain requires a process approach, whereby processes and procedures have to be clearly documented so that it could provide evidence as of a halal food supply chain implementation. The documented procedure should be monitored and audited by the internal halal executive as well certification bodies. This standard practices could help contributing towards a better audit monitoring, standard compliance and harmonization in halal food industry and halal supply chain integration [18]. The latest research done by local researcher Ngah and Zainuddin, 2014[27] in his finding reveals that most of halal manufacturers are non-muslim and they still do not understand the benefit of practicing halal services to their customer.

Most of the manufacturers and logistics companies stated that they need to consider on the additional operation cost and other constraints for the halal implementation. Therefore, it was agreed in order to be more competitive and robust, halal food manufacturers need to adapt with the advance of technology in their food processing and logistics services [16]. The awareness on technology and halal procedure in manufacturing and logistics process will help to mitigate the risks of cross contamination along the transportation process. Referred to current scenario whereby most of the halal food manufacturers are non-muslim, thus they are lacking of awareness and understanding of the halal food procedure. Nevertheless, Tieman (2014) [37] stated that one of the company failure in supply chain process that lead to cross contamination risk are the readiness of the companies to invest and improve their facilities and supply chain drivers.

### **Lack of use of Information Communication Technology (ICT) in Halal Logistics**

As discussed previously [5][38][39] the halal traceability system that could be adopted by the manufacturers and logistics service provider could assist to tracing any potential non halal ingredient as well as to validate and clarify the authenticity of the halal product. Most of researchers agreed that halal traceability system could help to eliminate the risk of cross contamination of halal food product. The current implementation of traceability system among food manufacturers in Malaysia are Radio Frequency Identification Device (RFID), barcode, GSM and application of web server and internet technology [40]. The adoption of the traceability system would help to identify the occurrence of cross contamination along the supply chain process. Hence, proper risk mitigation and techniques could be planned to mitigate the impact of loss from the food products contamination risks [41].

However, past studies have revealed that existing traceability tools adopted by manufacturers and logistics company are unreliable, lack of security, not real time basis and take longer time to trace [42]. Some of the logistics companies are still lack in traceability system installation in the transportation. This situation would increase the potential loss as an effect of cross contamination in manufacturing and supply chain process [40]. Without a proper traceability system, it will be very hard for the company to detect and to trace the lifespan and movement of the products. Traceability system will help to avoid the effect of product recall as it will help to trace back the history of the product starting from inbound stock to outbound material. As indicated by [26] product recall would affect the company reputation and financial performance. Traceability system is also important to build up company reputation from receiving impact of food recall [43]. By looking into current situation, cross contamination risks happened because of lack of awareness and readiness of the manufacturers and logistics company on the technology implementation [38]. Therefore there is a need to include traceability system as a mandatory requirement in the company operation for the control of product cross contamination risks.

### **Non Compliance of Food Packaging and Labeling Requirement**

Current trend of food production requires a good and safe packaging to ensure food safety and halal production throughout the whole halal supply chain process. In order for a ready product to be fully Sharia' compliant, the packaging process must be fully sharia' compliant as well. This is very crucial and important because if the packaging contains unclean or Haram materials, it can easily cross contaminates other product during transportation and storage process. Halal labelling [44] is also important in halal food packaging because the label will reveal all the information and detail of the product shelf life and ingredient included (Heckman, 2014). In case of transportation, risks of halal food product contamination would happen if the element of product segregation is not being monitored and audited frequently including the packaging issues of the food products.

Past research revealed that many food manufacturers and logistics companies in Malaysia failed to comply with the right requirements for halal packaging and labelling during transportation [45]. The case of hidden ingredient will increase the risks cross contamination and the risks of halal food product turn into haram food product. This situation happened due to lack of business integrity among the food manufacturers and also less monitoring from the local authorities. Any element of non halal element in the packaging and value added process will increase the chances of halal food product turn into haram product during the transportation process [26]. Past studies also showed that the use of recycled material in food packaging will create a potential risk of cross contamination to the finish food product as it was being loaded inside the food transportation. As indicated by (Burlingame, 2007) recycled material may transfer the contaminants to the food products if the trace of unclean material ingredient is still include in the recycled

packaging material and the container of the food transportation. The research on recycled material packaging is still being discussed but and need further attention from the researcher to investigate more on the issues.

### 3. METHODOLOGY

Based on an on-going research, this paper is produced based on review of all relevant literature from various databases related to halal supply chain from the perspective of halal logistics services providers in Malaysia. Extensive literature reviews were obtained from leading databases and articles through the use of relevant keywords related to the study. In order to have a clear and precise guidance in reviewing the literature, two research questions had been developed. First; what are the current scenarios of halal food industry with regards of cross contamination risks? Second; what are the issues and challengers faced by halal logistics services providers in halal supply chain process especially in transportation issues? By developing the research question, the issues can be narrowed down and focused only on halal logistics perspective. Hence, to support the study information from the literature, articles from journals has been reviewed. The sources of literature review include Pro-quest, EBSCO, Web of Science - Social Citations Index and Business Source Premier, Elsevier, Science Direct and Emerald. The report from the JAKIM, Halal Development Corporation, Malaysia Standard of MS1500: 2009, MS2400: 2010, Food Safety Act 1983 and Food Regulation 2009 are also being referred. The review of the literature would contribute to the development of halal food regulatory framework for the purpose of managing food product contamination risks along the halal food supply chain process.

### 4. DISCUSSION AND CONCLUSION

This paper review literatures related to the issues and challenges in managing cross contamination risks of halal food products. The study outcomes show that operational issues, natural hazard, business integrity and awareness on halal procedure had contributed to the halal food product contamination risks during transportation. Therefore, it was emphasized that government enforcement, compliance and company SOP's on risk control are very important in monitoring the issues of halal food products contamination faced by Halal logistics services companies. Based on the study, technology in halal transportation is crucial for Halal controls especially on the location, tracking, identification of goods and data communication. The reviews from the literature also highlighted on the risks factors of food product traceability contributed to the risks of food products contamination during transportation.

Another important factor to control the food product contamination risks are the readiness of the logistics companies to invest on their facilities, spacing capacity, transportation technology and transport maintenance. The improvement of the operational facilities and transportation maintenance will help to minimize the risks of halal food product contamination during transportation. In addition, the establishment of the Halal Committee in the company is \vital

to monitor the Halal procedure and compliances for the company daily operation. Halal logistics players should also have a team ready to manage the halal logistics operations and changes associated to the business compliances and environmental issues. The appointment of halal advisor or halal internal auditor is required as part of the company internal audit monitoring and risk management program. The committee must be fully equipped with knowledge, information and procedure of halal compliance based on The Department of Islamic Development of Malaysia (JAKIM) requirements and training development from Halal Development Corporation (HDC). In conclusion, company's initiatives and risk management measures must be undertaken effectively by the halal logistics companies in order to mitigate and control the risks of halal food product contamination during transportation process.

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