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Risk of HACCP Plan Implementation for Food Safety in Fruit Combining Start up Business PT Redceri Indonesia

Kartiko Setiyadi[1], Tantri Yanuar Rahmat Syah[2], Dadan Ramdhani[3], Semerdanta Pusaka[4], Darmansyah HS[5]

[1,2,3,4,5]Master of Management, Faculty of Economics and Business, Esa Unggul University – Jakarta

ABSTRACT: HACCP is a tool to assess hazards and establish control systems focused on preventative measures rather than relying mainly on end product testing over seven basic principles underline the concept. These principles include an assessment of the inherent risk that may be present from harvest through ultimate consumption. Six hazard characteristics and a ranking schematic are used to identify those points throughout the food production and distribution system whereby control must be exercised in order to reduce or eliminate potential risks. A guide for HACCP plan development and critical control point (CCP) identification. Furthermore, the document points out the additional areas that are to be included in the HACCP plan: the need to establish critical limits that must be met at each CCP, appropriate monitoring procedures, corrective action proceed ures to takes if a deviation is encountered, record keeping, and verification activities.

KEYWORDS: Hazard Analysis, Critical Control Point, Food Production.

1. INTRODUCTION

Aware of the large number of deficiencies or absence of food safety assurance is obtained from conventional inspection and testing as well as examples of a lot of products. PT Redceri Indonesia applies the concept of HACCP (Hazard Analysis Critical Control Point), i.e. food safety assurance system based upon a realization that hazard (hazard) potentially arising at various points or stage production, and must be controlled to prevent the occurrence of such hazards. HACCP focuses on hazards in a food commodity that if not controlled could affect public health and food product design, processing, commercialization, provision and the conditions controlling the hazards.

HACCP systems are not a food safety assurance system without the risk or zero-risk. However, HACCP is designed for minimizing a risk of food safety hazards in the food production process. HACCP systems also is a risk management tool that is used to protect food supply chains and production processes towards contamination hazards, chemical and physical purity.

The benefits of the application of the HACCP system for PT Redceri Indonesia is as follows:

Prevent or detect raw materials or unsafe ingredient before entering the production system. Keep the issue not be great and handled by implementing early detection.

Be aware of the presence of contamination at facilities that are used together for various products. Reduce the detention of products internally and the destruction of the products.

revent dependence testing against a final product that can cause the issue of unsafe products.

Application of HACCP in the food industry are specific for each type of product, every process, every factory. Besides the basic prerequisite is required in the form of application of GMP (Good Manufacturing Practice) and SSOP (Sanitation Standard Operating Procedures). An important factor for the success of the application of HACCP in the food industry is largely determined by the commitment of management to provide safe food.

In the implementation of HACCP, PT Redceri Indonesia implementing measures systematically in the 12 steps, which consists of five initial steps of preparation followed by seven the next step which is the seven HACCP principles. As for the stages of these steps are:

Stage 1 : Drafting HACCP team
Stage 2 : Description of products
Stage 3 : Identifying the purpose of the use of
Stage 4 : Compiling flowchart
Stage 5 : Confirm the flowchart in roomy
Stage 6 : Conduct a hazard analysis

Stage 7 : Determine critical control points (CCP)
Stage 8 : Determine the critical limits for each CCP
Stage 9 : Specify a monitoring or monitoring system for each CCP
Stage 10 : Specify the action correction if there is a deviation from the limit of critical
Stage 11 : Specify the verification procedure
Stage 12 : Specify the system documentation and record keeping systems or recording

2. THE FORMATION OF THE HACCP TEAM

The first step in the preparation of HACCP is forming a team of several members with the educational background or extensive work experience (multidisciplinary). The number of HACCP Team consisting of people from various parts of 5-6 or academic backgrounds such as microbiology, sanitation experts, chemists, engineers, part purchase, part of the QA/QC. People who are involved in the ideal team is included: (1) Staff of Quality Assurance or Quality Control Staff; (2) personnel Production Section (understand the raw materials and the production process); and (3) personnel of the technical/Engineering Section; and (4) Microbiological Experts. One Member is chosen as the next Chairman of the team. The Chairman of the team should already understand the preparation of HACCP plans or between teams already exist that follow HACCP training and/or auditing HACCP. The team formed in charge of drawing up an HACCP plan. For it teams should meet regularly to conduct discussions and brainstorming in the HACCP plan.

For PT Redceri Indonesia, HACCP team consists of: Section Head of Research and Development, production Supervisor, QA/QC Supervisor (as Chairman), Section Head of operations, Purchasing Staff and some of the employees as members.

3. DESCRIBE THE PRODUCT OF

The second Step in the preparation of HACCP plans are describing the product. HACCP team should choose which products to be made its HACCP plan if you have more than one product type.

The information must exist at the time described the product include composition, characteristics of finished products, processing methods are applied to the product (aw, pH, moisture content), while preserving the method applied to such products, primary packaging, packaging for transportation, storage conditions, method of distribution, the recommended shelf life, special labeling, usage instructions, special supervision in the distribution and where the product will be sold.

One example of PT Redceri Indonesia product description for product Redceri Puree Fruit Jelly Orange can be seen in the following table:

Table 1. Description of Product Redceri Orange

PARAMETER DESKRIPSI	KETERANGAN
Nama Produk	**Redceri Pure Fruit Jelly Orange**
Komposisi	89 ml air, 30 gram buah jeruk, 22 gram gula asli dan 1 gram kareganan, konyaku serta perisa alami buah
Karakteristik Produk	Bentuk menyesuaikan kemasan plastik cup dengan volume 110 ml, tinggi produk 25 mm, dilengkapi dengan sendok jelly
Metode Pengolahan	Pemasakan
Pengemasan Primer	Cup plastik PP (poly propylene)
Pengemasan Sekunder	Karton single layer ukuran 465x190x55 mm
Kondisi Penyimpanan	Suhu 8-14°C; hindari kontak matahari langsung
Umur Simpan	Suhu ruang 1 bulan: suhu 8-14°C 6 bulan
Metode Distribusi	Pengiriman dengan mobil box tertutup

4. THE DETERMINATION OF THE USE OF THE PRODUCT

At this stage, the team identifies how to use HACCP products by consumers, serving, as well as a group of consumers who consume the products. Important to know whether the product will be directly consumed (ready to eat) or be cooked beforehand by the consumer. It must be remembered there are high-risk consumer groups which include infants, the elderly, immune compromised groups (pregnant women, sick people, people who are undergoing chemotherapy, AIDS patients).

For product Redceri Puree Fruit Jelly Orange, descriptions of the users of its products is as follows: can be in direct consumption by consumers from all circles of society.

5. PRODUCT FLOW DIAGRAM

Process flow diagram was drawn up with the aim to describe the entire process of production. Flowchart of this process in addition to beneficial to assist in performing the HACCP team work, can also serve as a guideline for other person or institution who would like to understand the process and verification.

Flowchart should be covered all the stages in the process are clearly concerning:

- The details of the whole process of activities including inspection, transportation, storage and a delay in the process,
- The materials to be included in such a process of raw materials, packaging materials, water, air and chemicals,
- The output of the process such as waste: packaging, raw material, product, product reprocess in progress (rework), and products that are disposed of (rejected).

6. VERIFY THE FLOWCHART IN PLACE

In order for a process flowchart is made by complete and in accordance with the implementation on the ground, then the HACCP team should review the operations to test and prove the accuracy as well as the perfection of the process flow diagram. Here, the process flow diagram is not right or less than perfect, then to do modifications. Flowchart of the process that have been made must be documented and verified.

Flowchart process diverfikasi available, it can be done by:

- Observe the flow of the process.
- Sampling Activities.
- Interview.
- Observe routine operations/non-routine.

7. THE ANALYSIS DANGER

Hazard Analysis include activity:

- Identify hazards.
- Determine the significance.
- Identify precautions.

8. POTENTIAL HAZARD IDENTIFICATION

By referring to the flowchart process, HACCP team lists all dangers real or potential that might be worth is estimated to occur at each stage of the process. Such dangers include the danger of biological or chemical purity, dangers and physical danger.

Study of the risk (the significance of) the dangers

a. Possibility of danger will occur

This is usually called the chance of danger will occur. HACCP team needs to consider the likelihood (odds) for any hazards that have been identified. This inspection can be based on: knowledge of HACCP team; the literature on food microbiology, HACCP, food products, and food processing, scientific research papers; the journal; supplier; food producers or processors; information regarding the withdrawal of products; consumer complaints; the areas of process, raw materials, or product that has been identified is problematic. The possibility of harm occurring in a simple can be rated as high, medium, or low.

b. The level of seriousness of the Danger

Level of the seriousness of the danger can be grouped as follows:

- The seriousness of the hazard can be established by looking at its effect on the health of the consumer, and also impact on the reputation of the business.
- The seriousness of the danger can also be assessed: low, medium or high.

By combining opportunities with heavy and light danger will be able to set the level of risk (the SIGNIFICANCE of) the danger of being revealed as high, medium or low. Such an approach can be used to specify the type of control measures a must-have in place and the higher risk of danger, then the higher the specified monitoring frequency

Thus, the POTENTIAL HAZARD may be classified based on their significance, as shown in the table below. The significance of the danger can be decided by the team with the opportunity to consider the occurrence of (reasonably likely to occur) and severity (severity) of a danger.

Table 2. Determination of the Significance of Risk Or Hazard Categories

		Tingkat Keparahan (*Severity*)		
		L	**M**	**H**
Peluang Terjadi (*Reasonably like to occur*)	**L**	LL	ML	HL
	M	LM	MM	HM*
	H	LH	MH*	HH*

Remarks:
L = *Low*, M = *Medium*, H = *High*
* Generally considered significant and will be considered in the determination of the CCP

c. Determination of Precautions

The next step after analysing the potential hazard to identify the possible precautions to control any hazards. The team then had to consider whether precautionary measures, if any, can be applied to any danger. Precautions are all activities and activities that are needed to eliminate hazards or minimize its effects or its existence at an acceptable level. More than one precautionary measures may be needed to control the specific hazards and more than one hazard may be controlled by specific precautions.

Precautionary measures may include actions which are chemical, physical or other controlling food safety hazards. Precautionary measures in tackling the potential hazard can be more than one if needed.

This stage is an important stage after analysis of the danger. Precautions are defined as any action that may inhibit the incidence of potential hazard into products and refers to operating procedures are applied at each stage of processing. Due to the nature of the HACCP concept of prevention, then the HACCP system in designing precautionary measures should always be a concern. Here are a few examples of precautions:

- The separation of raw materials with a finished product in storage.
- Use a water source that already has security requirements.
- Calibration of the scales and gauges of temperature.
- using trucks that offer temperature control, etc.

Hazard analysis results poured in the table analysis of hazards. In the case of the production of Redceri Pure Fruit Jelly danger analysis table can be seen in the following table III:

Table 3. Hazard Production Analysis

NO	INPUT/TAHAPAN PROSES	AREA	IDENTIFIKASI BAHAYA	JUSTIFIKASI PENYEBAB BAHAYA	SIGNIFIKANSI BAHAYA			TINDAKAN PENCEGAHAN
					PELUANG	KEPARAHAN	SIGNIFIKANSI	
1	Penerimaan Bahan Baku (buah kupasan, gula, karagenan, perisa)	**Gudang**	B : Mikroba perusak (Amilolitik)	Penyimpanan	L	L	TN	SOP Penyimpanan
			K : Logam berat	Terbawa dari supplier	L	L	TN	Jaminan supplier
			F : Kerikil, Serangga, Buah busuk, Size buah	Terbawa dari supplier	H	L	TN	Jaminan supplier
2	Input air bersih		B : Koliform, E. Coli	Sumber air pabrik	M	H	N	Perlakuan Sanitasi Air
			K : Logam berat	Sumber air pabrik	M	L	TN	Analisis Air
			F : Kerikil, Serangga, Benda asing	Lingkungan pabrik	L	L	TN	Perlakuan Sanitasi Air
3	Penerimaan Supplies (cup plastik, sendok jelly, lid, karton)		B : Mikroba	Penyimpanan	L	L	TN	SOP Penyimpanan dan Jaminan supplier
			K : Logam berat, Migrasi	Terbawa dari supplier	L	L	TN	Jaminan supplier
			F : Kepecahan, Clarity, Berlubang, Potongan	Terbawa dari supplier	H	L	TN	Jaminan supplier
4	Sortir Buah	**Preparation**	B : Mikroba, Bakteri berspora	Kontak langsung pekerja	H	H	N	GMP, SSOP (higiene pekerja)
			K : Kontaminasi Kimiawi, Debu	Udara, Lingkungan kerja	L	L	TN	GMP, SSOP (higiene area kerja)
			F : Kerikil, Serangga, Benda asing, Buah busuk	Udara, Lingkungan kerja	L	M	N	GMP, SSOP (higiene area kerja)
5	Pemasakan Air Gula		B : Bakteri, Coliform, E. Coli	Suhu dan waktu pemasakan tidak cukup	H	H	N	GMP, SSOP (higiene pekerja), SOP Pemasakan
			K : Debu, Kotoran	Udara, Lingkungan kerja	L	L	TN	GMP, SSOP (higiene area kerja)
			F : Mixer, Piping	Alat dan Instalasi pabrik	L	M	N	GMP, Maintenance
6	Pengawetan Buah		B : Bakteri, Kapang	Wadah kotor	L	H	N	GMP, SSOP (higiene area kerja)
			K : Kotoran, Debu	Udara, Lingkungan kerja	L	L	TN	GMP, SSOP (higiene area kerja)
			F : Buah busuk, Suhu ruangan >18°C, Serangga	Alat dan Instalasi pabrik	L	M	TN	GMP, SSOP, Kontrol waktu dan suhu
7	Penimbangan		F : Benda asing	Timbangan kotor, Lingkungan	L	L	TN	Sanitasi timbangan

8	Pemasakan Jelly	**Produksi**	B : Bakteri (Salmonella)	Suhu dan waktu pemasakan tidak cukup	H	H	N	GMP, SSOP (higiene pekerja), SOP Pemasakan
			K : Debu, Kotoran	Udara, Lingkungan kerja	L	L	TN	GMP, SSOP (higiene area kerja)
			F : Mixer, Piping	Alat dan Instalasi pabrik	L	M	N	GMP, Maintenance
9	Filling		B : Bakteri, Coliform, E. Coli, Salmonella	Mesin kotor	H	H	N	GMP, SSOP (higiene pekerja), SOP Filling
			K : Debu, Kotoran	Udara, Lingkungan kerja	L	L	TN	GMP, SSOP (higiene area kerja)
			F : Piping, Press sealing	Alat dan Instalasi pabrik	L	M	N	GMP, Maintenance
10	Penimbangan		F : Benda asing	Timbangan kotor, Lingkungan	L	L	TN	Sanitasi timbangan
11	Pengepakan	**Packing**	F : Kontaminasi benda asing, Bocor	Pekerja	L	L	TN	GMP, SSOP (higiene pekerja)
12	Penyimpanan	**Logistik**	F : Hama, Suhu ruangan >18°C, Serangga	Pekerja, Lingkungan pabrik	L	M	N	GMP, SSOP, Kontrol waktu dan suhu

Remarks :

B (biological hazard), K (chemical hazard), F (physical hazard), L (low), M (medium), H (high), TN (unreal hazard), N (real/significant danger).

9. DETERMINATION OF CRITICAL CONTROL POINTS OR CCP

For each significant hazard then it must be specified whether or not included in the Critical Control Point or not. A critical control point is a stage or procedure where control can be applied and a food safety hazard can be prevented, eliminated or reduced to an acceptable level so that the risks can be minimized. In this stage cannot controlled then it can cause hazard food safety HACCP team establish where the dangers are high risks can be controlled. CCP can be identified by using knowledge of the production process and all potential hazards and dangers of an analysis of the hazards and precautions. To help find where it should be true, CCP can use decision tree Diagram of CCP (CCP Decision Tree).

Decision tree diagram is a logical question series asking every danger. The answer to each question will facilitate HACCP team and bring the logically decide whether CCP or not.

In addition to decision tree diagram process, to help set can also be used decision tree CCP for raw materials and formulations.

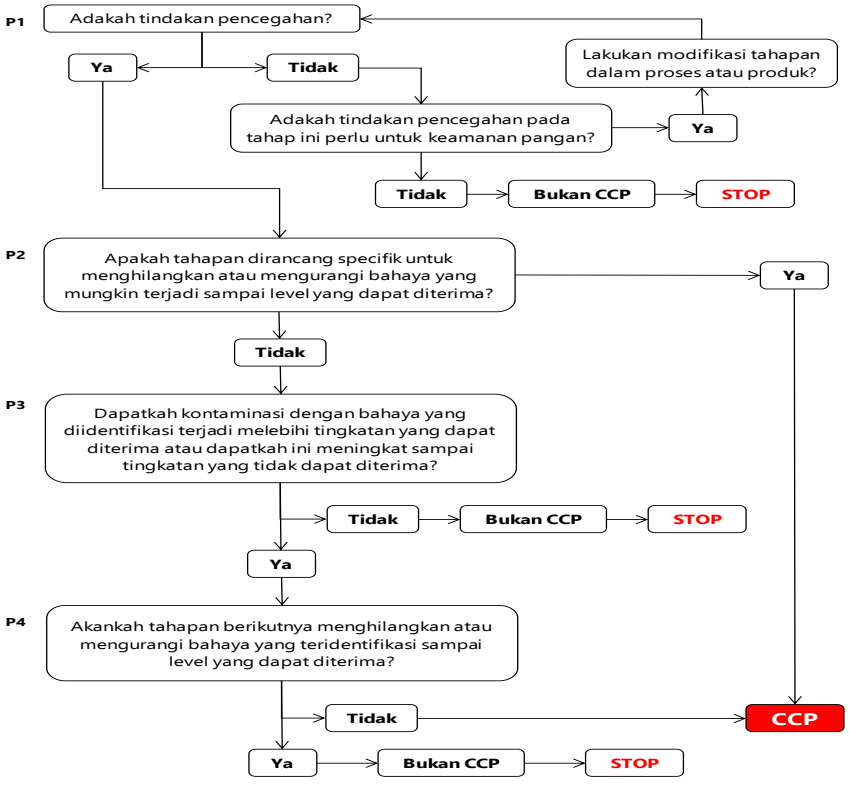

Figure 1. Decision Tree Diagram Process CCP

Examples of the results of the determination of the CCP by the HACCP team PT Redceri Indonesia Redceri on the production of Pure Fruit Jelly can be seen in the following table:

Table 4. Result of the determination CCP

INPUT/TAHAPAN PROSES	BAHAYA	P1	P2	P3	P4	STATUS
Penerimaan Bahan Baku (buah kupasan, gula, karagenan, perisa)	Mikroba Perusak	Y	Y			CCP
	Kerikil, Serangga, Buah busuk, Size buah	Y	Y			CCP
Input air bersih	Koliform, E. Coli	Y	N	N		Bukan CCP
Penerimaan Supplies (cup plastik, sendok jelly, lid, karton)	Mikroba	Y	Y			CCP
	Kepecahan, Clarity, Berlubang, Potongan	Y	N	N		Bukan CCP
Sortir buah	Mikroba, Bakteri	Y	Y			CCP
	Debu	Y	N	Y	Y	Bukan CCP
	Kerikil, Serangga, Buah busuk, Benda asing	Y	Y			CCP
Pemasakan Air Gula	Bakteri (Salmonella)	Y	Y			CCP
	Debu, Kotoran	Y	N	Y	Y	Bukan CCP
	Mixer, Piping	Y	N	Y	Y	Bukan CCP
Pengawetan Buah	Bakteri, Kapang	Y	Y			CCP
	Kotoran, Debu	Y	N	Y	Y	Bukan CCP
	Buah busuk, Suhu ruangan >18°C, Serangga	Y	N	Y	N	CCP
Filling	Bakteri, Coliform, E. Coli, Salmonella	Y	Y			CCP
	Debu, Kotoran	Y	N	Y	Y	Bukan CCP
	Piping, Press sealing	Y	N	Y	Y	Bukan CCP
Pemasakan Jelly	Bakteri (Salmonella)	Y	Y			CCP
	Debu, Kotoran	Y	N	Y	Y	Bukan CCP
	Mixer, Piping	Y	N	Y	Y	Bukan CCP
Penimbangan	Benda asing	Y	N	N		Bukan CCP
Pengepakan	Kontaminasi benda asing, Bocor	Y	N	Y	Y	Bukan CCP
Penyimpanan	Hama, Suhu ruangan >18°C, Serangga	Y	N	Y	N	CCP

10. THE DETERMINATION OF CRITICAL LIMITS

For each CCP identified critical limits should be determined then. Critical limit shows the difference between products that are safe and not safe so that the production process can be managed in a secure level. This critical limit should not be passed to ensure that the CCP is effectively in control of the dangers of purity, chemical and physical. The common criteria is used to determine the critical limit is the physical criteria such as temperature, time, humidity levels, and viscosity, as well as chemical criteria such as pH, free chlorine residual, tertitrasi acid levels. Microbiological criteria are not used as a critical limit due to these measures take a long time. In addition to physical and chemical measurements can be used as indicators of measurement or control of purity.

To set a critical limit can use data sources from articles in the journal, regulations and Government documentation, the guidelines of the Association, publications of research at universities, manufacturers, consultants and maker of the equipment used.

11. SETTING PROCEDURE MONITORING

Monitoring procedures (Monitoring) is a stage of the observation or measurement of critical limits are planned to generate the proper recording and is intended to ensure that the critical limit was able to maintain the security of the product. HACCP team set a series of monitoring procedure for each critical limit is set that covers the what, who, where, when and how the monitoring was done.

The question is answered with what should be monitored, that is based on a critical limit is defined as the temperature, time, size and so on. Answered the question why the reason that if is not monitored and the critical limit will cause certain dangers and terkendalinya not allow cause insecurity products. The question which should be answered at which point or at a location where the monitoring should be done. The question of how the ask method of monitoring, whether in remote, chemistry, or specific measurements. Next is the question of when do monitoring, ideally a minimum which occurs in the flow of production interruptions, or lot, or other data which establishes a period of monitoring. Last is the question of who is doing the monitoring, which ideally is the personnel who have access to a very easy on the CCP, have the skills and knowledge of the CCP and ways of monitoring, highly trained and experienced.

By setting the critical limit is then obtained data and information for the underlying decisions, got early warning if there are any irregularities, to prevent or minimize loss of product, indicating the reasons for the problem and provide a document that the product has been produced in accordance with the HACCP plan. All documents related to record-keeping and monitoring the CCP must be signed by a person who does the monitoring and by the person in charge.

12. SET THE ACTION OF THE CORRECTIONS

Act Corrections is all the action taken if the monitoring results on CCP deviations of critical limits (losing control) because if control is lost, then the product is not eligible. In practice, there are two levels of correction actions, namely:

- immediate action (Immediate Action), i.e. the adjustment process to be controlled again and deal with the suspected products affected by the irregularities.
- the precautionary measures (Preventive Action), i.e., accountability for the action recording and action correction.

13. SET OF PROCEDURES VERIFICATION

HACCP Team devised a procedure to assure that the HACCP plan is already valid and that the HACCP plan drawn up has been implemented as planned. Verification is the application of a method, procedures, tests or other evaluation to determine the suitability of an implementation with the HACCP plan. Verification gives assurances that the HACCP plan has complies with daily operations and will result in the product Redceri Puree Fruit Jelly with good quality and/or safe to consume. Specifically, the verification procedure must ensure that:

- The HACCP plan is applied are absolutely right to prevent the danger of the process and product hazards.
- Monitoring Procedures and corrective actions still applied.
- Internal audit, microbiology or chemical testing on the final product.

14. DOCUMENTATION AND RECORDINGS

Either documents or data records is written evidence that an action has been performed. These documents can be used (1) for the purposes of inspection and (2) to the study of lapses that resulted in the damage and find the appropriate correction action. Type of document (data records) that must be present in the preparation of HACCP plans are:

- HACCP plan and all supporting material.
- Document monitoring.
- Document Action correction.
- Document verification.

He arranges with the system documentation, then it was the preparation of HACCP plans production of PT Redceri Indonesia. HACCP plans are subject to change in case of change in raw materials, the layout of the factory, equipment replacement, cleaning or sanitation program changes, the application of the new procedures, changes in consumer products group and the presence of new information about a hazard. Determination of the CCP, the determination of critical limits, designation procedures monitoring, the setting of the correction action, determination of procedures verification and documentation is good next pour in the HACCP Plan table.

As for the HACCP Plan table for the production of Redceri Pure Fruit Jelly was as follows:

Table 5. HACCP Plan PT. Redceri Indonesia

TAHAPAN PROSES CCP	BATAS KRITIS	PROSEDUR MONITORING					TINDAKAN KOREKSI	VERIFIKASI	DOKUMENTASI DAN RECORD
		WHAT	HOW	WHERE	WHO	WHEN			
Penerimaan buah kupasan	Tidak ada kotoran (foreign material), ukuran standart, tidak busuk dan berbau, jaminan supplier (CoA berdasar SNI 3165:2009 atau 4230:2009)	Kondisi fisik buah kupasan dan *Certificate of Analysis* (CoA)	Melakukan pemeriksaan visual dan memeriksa jaminan supplier melalui CoA	Tempat penerimaan bahan baku	Karyawan gudang	Setiap kedatangan dan penerimaan	1. Hubungi staff QC/QA dan putuskan diterima atau ditolak 2. Komplain kepada supplier	Review *form* penerimaan setiap bulan	Rekaman penerimaan bahan baku
Penerimaan gula, karagenan dan perisa	Tidak ada kotoran (foreign material), jaminan supplier (CoA berdasar SNI)	Kondisi fisik dan *Certificate of Analysis* (CoA)	Melakukan pemeriksaan visual dan memeriksa jaminan supplier melalui CoA	Tempat penerimaan bahan baku	Karyawan gudang	Setiap kedatangan dan penerimaan	1. Hubungi staff QC/QA dan putuskan diterima atau ditolak 2. Komplain kepada supplier	Review *form* penerimaan setiap bulan	Rekaman penerimaan bahan baku
Penerimaan cup plastik, sendok jelly, lid dan karton	Tidak ada kotoran (foreign material), kontaminasi, NG produk, jaminan supplier (CoA berdasar SNI)	Kondisi fisik dan *Certificate of Analysis* (CoA)	Melakukan pemeriksaan visual dan memeriksa jaminan supplier melalui CoA	Tempat penerimaan bahan baku	Karyawan gudang	Setiap kedatangan dan penerimaan	1. Hubungi staff QC/QA dan putuskan diterima atau ditolak 2. Komplain kepada supplier	Review *form* penerimaan setiap bulan	Rekaman penerimaan supplies
Input air bersih	1. Kejernihan, warna, bau dan kontaminasi (atribut) 2. Standart variable air bersih	Kondisi fisik air input	1. Melakukan pemeriksaan visual 2. Uji berkala kandungan air input	Bak penampungan air baku	QA/QC inspector Spv. Maintenance	1. Setiap awal proses produksi 2. Berkala 6 bulan sekali	1. Hubungi staff QC/QA dan putuskan memenuhi syarat untuk proses produksi atau tidak 2. Hubungi tim maintenance untuk pengecekan kondisi *water treatment* pabrik 3. Komplain kepada supplier	Review *form* pengecekan air baku harian	Rekaman pengecekan air baku
Sortir buah	Tidak ada kotoran (foreign material), tidak terkontaminasi, ukuran standart, tidak busuk dan berbau	Kondisi fisik buah kupasan dan kesesuaian standart internal	Melakukan pemeriksaan visual dan kesesuaian standart	Area sortir buah	QA/QC inspector Spv. Produksi	Setiap proses produksi berlangsung	1. Hubungi staff QC/QA dan putuskan memenuhi syarat untuk proses produksi atau tidak 2. Komplain dan return ke bagian gudang 3. Peneguran	Review *form* sortir buah harian	Rekaman penyortiran buah

Table 5. HACCP Plan PT. Redceri Indonesia (Continued)

TAHAPAN PROSES CCP	BATAS KRITIS	PROSEDUR MONITORING					TINDAKAN KOREKSI	VERIFIKASI	DOKUMENTASI DAN RECORD
		WHAT	HOW	WHERE	WHO	WHEN			
Pengawetan buah	Tidak ada kotoran (foreign material), tidak terkontaminasi, ukuran standart, tidak busuk, berbau, temperatur ruangan <18°C, kebersihan bak pengawet, sanitasi pekerja dan GMP memuaskan	Kondisi bak pengawetan, temperatur ruang pengawet, kondisi fisik buah kupasan dan kesesuaian standart internal, kebersihan pekerja	1. Pemeriksaan rutin bak dan temperatur ruangan 2. Melakukan pemeriksaan visual bahan baku dan media pengawetan 3. Mengamati kondisi higiene pekerja	Area pengawetan buah	QA/QC inspector Operator pengawetan	Setiap proses produksi berlangsung	1. Hubungi staff QC/QA dan putuskan memenuhi syarat untuk proses produksi atau tidak 2. Produk yang gagal dimusnahkan	1. Review *form* pengawetan buah harian 2. Review form checklist sanitasi peralatan pengawetan 3. Review form checklist temperatur ruangan	1. Rekaman pengawetan buah 2. Rekaman checklist sanitasi peralatan 3. Rekaman checklist temperatur ruangan
Pemasakan air gula dan jelly	Tidak ada kotoran (foreign material), tidak terkontaminasi, standart timbangan bahan baku, kebersihan bak pengawet, sanitasi pekerja, suhu pemasakan minimal 90°C, waktu pemasakan, sanitasi pekerja dan GMP memuaskan	Kondisi bak pengawetan, suhu dan waktu pemasakan dan kesesuaian standart internal, kebersihan pekerja	1. Pemeriksaan suhu dan waktu pemasakan 2. Melakukan pemeriksaan visual 3. Pemeriksaan timbangan bahan yang digunakan 3. Mengamati kondisi higiene pekerja	Area pemasakan air gula dan jelly	QA/QC inspector Operator pemasakan	Setiap proses produksi berlangsung	1. Hubungi staff QC/QA dan putuskan memenuhi syarat untuk proses produksi atau tidak 2. Produk yang gagal dimusnahkan 3. Peneguran	1. Review *form* pemasakan harian 2. Review form checklist sanitasi peralatan pemasakan 3. Review form checklist suhu dan waktu pemasakan 4. Review form pemakaian bahan baku	1. Rekaman pemasakan air gula dan jelly 2. Rekaman checklist sanitasi peralatan 3. Rekaman checklist suhu dan waktu pemasakan 4. Rekaman pemakaian bahan baku
Filling	Sanitasi pekerja, sanitasi mesin filling, dan GMP memuaskan	Kondisi kebersihan lingkungan, kondisi kebersihan mesin filling, kesesuaian standart internal dan kebersihan pekerja	1. Pemeriksaan kebersihan area filling 2. Melakukan pemeriksaan visual 3. Pemeriksaan kebersihan mesin 4. Mengamati kondisi higiene pekerja	Area filling	QA/QC inspector Spv. Produksi	Setiap proses produksi berlangsung	1. Hubungi staff QC/QA dan putuskan memenuhi syarat untuk proses produksi atau tidak 2. Peneguran 3. Produk yang gagal dikarantina atau dimusnahkan	1. Review *form* produksi harian 2. Review form checklist sanitasi mesin filling 3. Review form sanitasi pekerja	1. Rekaman produksi 2. Rekaman checklist sanitasi peralatan 3. Rekaman checklist sanitasi pekerja
Packing	Sanitasi pekerja, sanitasi area packing, dan GMP memuaskan	Kondisi kebersihan lingkungan, kesesuaian standart internal dan kebersihan pekerja	1. Pemeriksaan kebersihan area packing 2. Melakukan pemeriksaan visual 3. Mengamati kondisi higiene pekerja	Area packing	QA/QC inspector Spv. Produksi	Setiap proses produksi berlangsung	1. Hubungi staff QC/QA dan putuskan memenuhi syarat untuk proses produksi atau tidak 2. Peneguran 3. Produk yang gagal dikarantina atau dimusnahkan	1. Review *form* produksi harian 2. Review form checklist sanitasi area packing 3. Review form sanitasi pekerja	1. Rekaman produksi 2. Rekaman checklist sanitasi peralatan 3. Rekaman checklist sanitasi pekerja
Penyimpanan	Sanitasi area penyimpanan, temperatur ruang penyimpanan dan GMP memuaskan	Kondisi kebersihan lingkungan, kesesuaian standart internal dan temperatur suhu ruangan	1. Pemeriksaan kebersihan area penyimpanan 2. Melakukan pemeriksaan visual 3. Mengamati temperatur ruangan penyimpanan	Area penyimpanan	Tenaga logistik Spv. Logistik QA/QC inspector	Setiap penerimaan barang jadi	1. Hubungi staff QC/QA dan putuskan memenuhi syarat untuk dikirim atau tidak 2. Peneguran 3. Produk yang terindikasi *defect* dikarantina atau dimusnahkan, setelah dilakukan rework	1. Review *form* penerimaan FG harian 2. Review form checklist sanitasi area penyimpanan 3. Review form checklist temperatur ruangan	1. Rekaman penerimaan FG 2. Rekaman checklist sanitasi area penyimpanan 3. Rekaman checklist suhu ruangan

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