ベトナム国

ベトナム国
次亜塩素酸水（レドックスター）生成器と衛生管理技術による加工食品の付加価値向上にかかる基礎調査

業務完了報告書

2019 年 12 月

独立行政法人
国際協力機構（JICA）

RED 株式会社

民連
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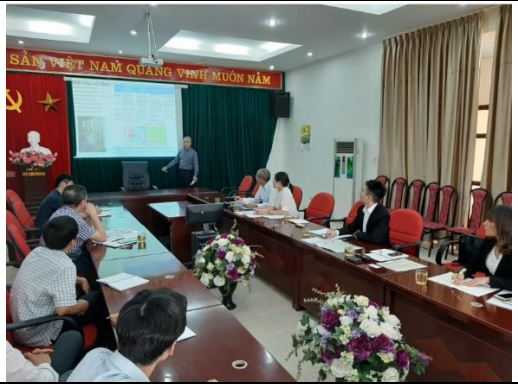
<tr><td>  </td><td>  </td></tr>
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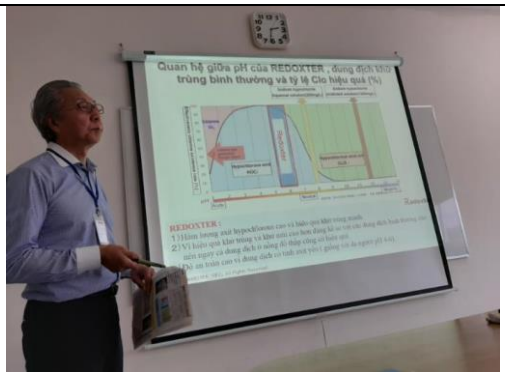
<tr><td>  </td><td>  </td></tr>
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略語表

略称	正式名称	和称
DAH	Department of Animal Health	獣医局
DLP	Department of Livestock Production	畜産局
EU	European Union	欧州連合
FAO	Food and Agriculture Organization	国際連合食糧農業機関
HACCAP	Hazard Analysis Critical Control Point	危害分析重要管理点
ISO	International Organization for Standardization	国際標準化機構
JV	Joint Venture	戦略的提携
MARD	Ministry of Agriculture and Rural Development	農業農村開発省
MOH	Ministry of Health	保健省
MOIT	Ministry of Industry and Trade	商工省
NAFIQAD	National Agro-Forestry- Fisheries Quality Assurance Department	農林水産品質保証局
NIAS	National Institute of Animal Sciences	国立動物科学研究所
QCVN	Quy Chuan Viet Nam	技術基準
RETAQ	Refarence Testing and Agri-Food Quality Assurance	検査・農産食品品質コンサルティング
SPS	Vietnam Sanitary and Phytosanitary Notification Authorities and Enquiry Point	植物衛生検疫局
WTO	World Trade Organization	世界貿易機関
PPD	Department of Plant Protection	植物保護局

要約

・対象国・地域の開発課題

ベトナムでは、農水産業の付加価値を高め、国際競争力を強化し、同分野を主力産業の１つとする政府方針を定めている。一方、農水産物の品質において、特に衛生上の課題が山積している状況であり、衛生管理の改善が急務である。同様に、国内の食品衛生状態も課題が多く、老人や子供など弱者の健康を脅かすリスクとなっている。提案製品は、殺菌能力のある次亜塩素酸を最も効力を持つ pH に調整し、連続して供給できる技術であり、かつ安全性の高い技術であることから、同製品の普及により、こうした課題の解決に寄与する。

本調査では、食品輸出企業を対象に現在の衛生管理状況をヒアリング調査した。その結果、衛生設備はどの企業でも設置されているものの、導入技術や運用体制の面から十分な衛生管理をできておらず、各企業も改善を目指した新設備の導入などを検討しているところであった。

衛生管理の必要性は認識されており、輸入側の企業からの指導もある中で、衛生技術の選択肢が少ないことが課題であると読み取ることができた。政府も、対策に向けて様々な制度設計や基準を設けているところであるとともに、企業の技術オプションが少ないことも認識しており、提案技術のような製品の普及について期待を得たところである。また、現在、アフリカ豚コレラの蔓延が畜産業の大きな脅威となっており、畜舎の衛生管理への適用についても検討依頼を受けている。

・提案法人、製品・技術

提案製品は、高い除菌効果を得られる次亜塩素酸水を生成する次亜塩素酸水生成器「レドックスター」である。提案法人は、当製品の製造・販売、また衛生管理に関するコンサルティングを行っている。次亜塩素酸は、高い除菌効果を持つが、pH に依存する。このため、提案法人の生成器は、もっとも高い除菌効果を示す微酸性の範囲において次亜塩素酸水を生成することができる装置で、二液混合方式を採用しており、短時間に大量の生成が可能である。単位量当たりのコストもアルコールや次亜塩素酸ナトリウム等他の方式と比較して安価であり、大量に除菌が必要な食品加工業などに最適である。日本では、京都大学 iPS 細胞研究室をはじめ、食品工場、病院、学校、老人介護施設、ホテル、畜舎などに導入されてきた実績がある。

・ビジネス展開計画

本調査では、現地ニーズを踏まえ、提案法人独自で商業展開するケース（以下、「商業展開」）をベースとしつつ、事業における普及・実証・ビジネス化事業（以下、「実証事業」）を経てビジネス展開に移行する２つのケースを想定した。

商業展開に関しては、本調査のヒアリングの段階で、見積依頼やサンプル提示の依頼があるなど、各企業からは高い関心を得る事ができている。農業農村開発省（MARD）からも、こうした技術の普及を歓迎しており。サンプル提示に係る通関手続き等において支援も期待できる状況となっている。今後、見積提示のうえ仕様や価格の交渉を進め、実販売に繋げる営業を進める方針である。

一方、農業農村開発省（MARD）からは、アフリカ豚コレラをはじめとする家畜の感染性疾病への対策にも高い期待を寄せられているところである。提案製品は日本において、家畜の防疫にも適用した事例があり、畜舎の衛生管理や防疫に係る対策の提案を進めたいと考えているところであるが、防疫効果を確実なものとするためには、関係機関への規制基準の確認や研究機関との調整等、現地適用にあたって民間企業単体としては対処が難しい課題もある。そこで、防疫分野への参入に際しては、ビジネス展開とは別途、「中小企業・

SDGs ビジネス支援事業」における実証事業を活用した事業化を検討する方針である。防疫分野に特に高い期待を有していた畜産局（DLP）からは、衛生管理システムや薬品を使用してアフリカ豚コレラの対策を検討している National Institute of Animal Sciences（Vice-president）との連携を推奨されており、今後も意見交換を継続する。

・ODA 事業との連携可能性

ベトナムで実施されてきた ODA 事業のうち、本提案製品は食品バリューチェーンに関する事業との連携を図ることができる可能性がある。例えば、ゲアン省における農業振興マスタープラン及び行動計画の策定を実施した「ゲアン省農業振興開発計画策定支援プロジェクト」や、漁獲後の衛生管理への機材導入等の連携を図る等の形で「マグロ漁業の近代化のための漁獲技術及び資機材の普及・実証事業」などとの連携が期待できる。

さらに、直近では、食品検査体制の拡充および検査能力向上を目指す無償資金協力事業である「農業・水産食品の安全確保のための検査・農産食品品質コンサルティングセンター能力強化計画」がある。当事業とは、食品業界に対する技術指導などに際して、提案製品を衛生管理の推奨技術のひとつとして推奨頂くなどの連携を期待したい。

案件概要図（和文）

ベトナム国　次亜塩素酸水(レドックスター)生成器と衛生管理技術による加工食品の付加価値向上にかかる基礎調査

RED株式会社（兵庫県明石市）

対象国農業分野における開発ニーズ（課題）

- 食品の衛生管理技術不足による食中毒等の頻発
- 衛生管理不徹底による食品加工物輸出における積戻し、ロスの発生
- 農水産業の付加価値向上における衛生管理技術の不足

提案製品・技術

- 高い除菌力を持つ次亜塩素酸水を大量かつ安定的に生成する装置の製造技術
- 同技術を用いた次亜塩素酸水の適正利用による食品衛生管理指導

本事業の内容

- 契約期間：2019年6月～2020年2月
- 対象国・地域：ベトナム国ハノイ市、ハイフォン市、ホーチミン市
- カウンターパート機関：ベトナム国農業農村開発省
- 案件概要：次亜塩素酸水生成器と衛生管理技術の導入により、ベトナム国の食品衛生向上と食品の付加価値向上に繋げ、生成器の普及を目指す基礎調査。

レドックスター生成器
（RED-1500）

開発ニーズ（課題）へのアプローチ方法（ビジネスモデル）

- 食品加工工場を対象に、同技術の普及を図り、加工食品の製造における衛生状態を改善。
- 本製品の導入と同時に、国内で培った衛生に関するノウハウ、管理技術も移転することにより、ハードとソフト両面から、顧客のニーズに応え、付加価値向上に寄与することで、普及を図る。

対象国に対し見込まれる成果（開発効果）

- 農水産物の衛生状態が改善され、ベトナム国内の食品由来の疾病を減少させ、健康増進効果をもたらす
- 輸出に求められる衛生基準を達成することで、高付加価値農産物の輸出によるバリューチェーンの構築に貢献。

案件概要図（英文）

Small and Medium-Size Enterprise (SME) Partnership Promotion Survey for Improving Added Value of Processed Foods with Hypochlorous Acid Water(REDOXTER) Generator and Sanitary Control Technology in Vietnam (RED CO., LTD., (Hyogo Pref.,))

Development Issues Concerned in Agriculture Sector

- Frequent occurrence of food intoxication due to lack of hygiene control technology.
- Loss (Ship back) of food exports due to lack of sanitation management
- Lack of hygiene management technology in value added improvement of agriculture and fishery industry.

Products/Technologies of the Company

- Manufacturing technology of a device that generates hypochlorous acid water with high disinfection capacity in large quantity and stabilty
- Guidance and Training on food hygiene management by appropriate use of hypochlorous acid water using with this technology

Survey Outline

- Survey Duration: June, 2019~February, 2020
- Country/Area: Vietnam, Hanoi city, Hai Phong city, and Ho Chi Minh city
- Name of Counterpart: Ministry of Agriculture and Rural Development
- Survey Overview: In this basic survey will introduce hypochlorous acid water generator and hygiene management technology, lead to the improvement of food hygiene in Vietnam and the improvement of added value of food, and investigate the possibility of aiming at the popularize of hypochlorous acid generator.

Redoxter
(RED-1500)

How to Approach to the Development Issues

- Improvement of sanitary condition in manufacturing of processed foods by promoting spread of this technology for food processing factories.
- Contribute sanitation improvement result by training hygiene management abilities, not only products.

Expected Impact in the Country

- The sanitary condition of agricultural and fishery products is improved, and food-borne diseases in Vietnam are reduced.
- Also contribute to development of the value chain by exporting high-value-added agricultural products by achieving sanitation standards required for exports.

はじめに

調査名

和文：次亜塩素酸水（レドックスター）生成器と衛生管理技術による加工食品の付加価値向上にかかる基礎調査

英文：Small and Medium-Size Enterprise (SME) Partnership Promotion Survey for Improving Added Value of Processed Foods with Hypochlorous Acid Water(REDOXTER) Generator and Sanitary Control Technology.

調査の背景

提案法人である「RED 株式会社」（以下、「提案法人」という。）は、食品加工など産業用途の次亜塩素酸水生成器の製造・販売を中核事業としている。提案法人が手掛ける次亜塩素酸水生成器及び付帯する衛生管理技術は、効果、安全面で他の方法（例えばアルコール等）よりも可用性、利便性が高く、コスト面でも優位性がある。

衛生問題がより深刻で、改善余地の大きい途上国地域については、衛生環境の改善や、食品等のバリューチェーン構築に際して、衛生状態の改善による付加価値向上にも貢献できる可能性がある。特に、農産品の輸出拡大を目指した取り組みが行われていながらも、食中毒をはじめとする衛生管理の問題が顕在化しているベトナムにおいて、提案技術の高いニーズや導入効果が期待できる。よって、本調査では、ベトナムにおける食品分野の衛生に係る開発課題解決に貢献しつつ、具体的な需要の掘り起こしとビジネス展開を検討する。

調査の目的

本調査では、ベトナムにおける衛生課題の正確な把握とともに、当課題の解決に際して、提案法人の製品である次亜塩素酸水生成器「レドックスター」による開発課題解決可能性を検討するとともに、当製品の活用と衛生管理の技術移転による加工食品の付加価値向上の可能性について調査し、ビジネス展開の計画を策定することを目的とする。

調査対象国・地域

ベトナム国　ハノイ市、ハイフォン市、ホーチミン市

契約期間、調査工程

2019 年 6 月 3 日～2020 年 2 月 21 日

調査団員構成

調査団員構成及び担当業務を以下に示す。

表 1　調査団員構成及び担当業務

調査団員氏名	業務内容	所属
小川 敦嗣 （提案法人）	業務主任者、ビジネス展開策定、 技術適合性検討	アール・イー・ディー株式会社
上田 晋 （提案法人）	ビジネス展開策定	アール・イー・ディー株式会社
栗田 永幸 （外部人材）	チーフアドバイザー、パートナー調査	日本エヌ・ユー・エス株式会社
加藤 浩 （外部人材）	開発課題調査分析、市場調査	JNK Environmental Resarch & Consulting Co., Ltd
石黒 秀典 （外部人材）	食品衛生・工程管理検討	日本エヌ・ユー・エス株式会社
ホァン バン ヒュー （外部人材）	ODA 案件化、現地法令、投資環境調査	日本エヌ・ユー・エス株式会社

出典：提案法人作成

第１章　対象国・地域の開発課題

１－１　対象国・地域の開発課題

ベトナムでは、農水産業の付加価値を高め、国際競争力を強化し、同分野を主力産業の１つとする政府方針を定めている。例えば、「農業構造の再編計画の承認（2017 年-2020 年）首相決定 No. 1819」では、「生産・加工プロセス等の生産チェーンに係る問題を解決し、生産能力や品質の飛躍的な進歩のため、食品安全衛生の確保、競争力・効果力の向上を図る」といった目標が示されている。これは、食品生産・加工だけでなく、流通などについても課題解決を図ることを意味し、高付加価値なフードバリューチェーンの構築を目指していると理解できる。その実現のためには、生産物の安全性確保、生産物の品質や流通過程での品質劣化防止、食品の一次加工など、衛生面の問題の改善が重要である。

一方、2016 年の世界銀行の調査では、ハノイ市とホーチミン市で採取した豚肉サンプルの約 30～40%がサルモネラ菌に汚染されているとの報告もあり、衛生課題は山積している状況である。

日本においても、ベトナムから多くの食品を輸入しており、なかでも水産物の輸入は盛んであるが、さまざまな衛生課題を抱えていると言われている。例えば、水産物輸入業者からの情報では、ベトナムで流通している水産物の一般性菌数は 100 万 CFU／ml[1]を越える汚染度となっているという。生食の安全な基準[2]とされる値は 10 万 CFU／ml 台であるが、この基準の水産物はほとんど流通しておらず、衛生管理の改善が必要とされる状況にある。

2017 年のベトナムから日本へ輸入された食品のうち、54 件の食品衛生法違反事例があり、その中には大腸菌群陽性など、衛生管理に起因する要因のものが 50%となっていることからも、衛生管理の深刻な実態を読み取ることができる。

JICA の「民間企業の製品・技術の活用が期待される開発途上国の課題」においては、No. 6-VT-1 として「高度な食品加工技術、高度なポスト・ハーベスト技術」が掲げられているが[3]、この文脈において、日本の民間技術の活用が想定される製品・技術・ノウハウとして「農産物の品質保持・鮮度保持の改善技術の導入を含んだ、生産者～消費者までの一括した流通事業化に関するノウハウ」が示されており、衛生管理に係る対策が不可欠な要素である。

本提案製品・技術は、除菌作用を有しかつ分解の早い安全な除菌剤である次亜塩素酸ナトリウムを、pH の最適な調整により、低濃度で高い除菌効力をもたらす次亜塩素酸水として連続的に生成する技術である。大量かつ十分な効力があり、かつ安全でなければならない食品安全の現場で特に最適であり、日本でも多くの導入実績を有する。また、提案法人

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[1] Colony Forming Unit の略で、菌量を表す単位。（コロニーを形成する能力のある単位数）10CFU/g または 10CFU/ml とは 1 g または 1 ml 中に菌が 10 個存在することを表す。

[2] 食品衛生法および衛生規範における微生物規格基準においては、食品品目ごとに基準が示されており、例えば牛乳は 50,000CFU/ml、清涼飲料水は 100CFU/ml、無加熱生食冷凍食品は 100,000CFU/ml となっている。

[3] 民間企業の製品・技術の活用が期待される課題　現地詳細情報（ベトナム国）
https://www.jica.go.jp/priv_partner/case/reference/subjects/ku57pq00002azzhs-att/agriculture_6-VT-1.pdf

は、当該装置を効果的に利用しつつ、衛生管理指導を行う衛生コンサルティングサービスを提供しており、製品導入のみでは解決が難しい現場にもきめ細かいサポートを提供できる。よって、提案技術の普及により、衛生課題の解決を図ることで、ベトナムの農水産業の付加価値を高め、国際競争力向上に寄与できる可能性がある。

ベトナムの食品安全に関わる本格的な取り組みは、WTO 加盟を契機としており、2003 年に食品安全法令を交付、2006 年、首相決定による「2010 年までの食品安全確保のための行動計画」、翌 2007 年には「食品の安全 確保のための緊急対策に関する首相指示」の公布、2008 年には「食品安全に関する政令」の公布及び「SPS 協定実施促進に係る国家行動計画」の公布（首相決定第 147 号）と、改善に向けた制度構築がすでに進んでいるところである。

一方、現場の管理者の能力や、法制度が十分に機能していないことも指摘されており、近年の日本の輸入食品に関する違反事例は中国に次ぎ多い[4]。さらに、国内で流通する食品をみると、農産物や水産物を原因とする食中毒の割合は、依然として高い。ベトナム保健省によれば、2007～2012 年で 1,095 件の食中毒が発生し、入院者数は 28,222 人、死者 264 名[5]となっている。食中毒は、特に老人や子供など弱者が健康被害を受けやすい疾病であり、緊急な対策が求められている開発課題のひとつと捉えられる。

当開発課題の実態把握として、調査団はまず、食品安全に徹底した管理を求められている輸出食品加工会社を対象とすることとした。食品安全管理が売上や信用に直結し、当該課題の解決に比較的費用をかける蓋然性が高いためである。そうした企業が世界基準の食品安全体制をとることにより、衛生管理基準の底上げが促進され、国内向けに食品加工を行っている中小の企業等にも技術やノウハウの普及につながる効果が期待できる。

そこで、調査団では、「衛生課題を抱えるとともに、提案製品の導入により高い改善効果を期待できる食品加工会社（工場）」を特定するため、日本の厚生労働省食品安全行政における輸入時検査等において食品衛生法違反となった直近 1 年の事例をもとに、ベトナム企業を抽出し、かつ衛生に係る事例（大腸菌群数等）を抽出し、ヒアリングにより実態把握を試みることとした。

抽出の結果は、ベトナム企業における日本の輸入食品衛生法違反事例はハノイ 9 社、ハイフォン 4 社、ホーチミン 21 社であった。これらのうち、水産加工工場 4 社、食肉工場 1 社に訪問し、実態を把握することができた。

また、本開発課題に係るベトナム政府の見解をヒアリングした。

さらに、食品とは別途、提案技術を活用できる可能性のある候補地についても開発課題を含め検討を行った。これらの調査結果を以下に示す。

１－１－１　食品加工企業調査結果

訪問調査した水産加工工場は、輸出を手掛ける一定規模以上の企業であったため、衛生管理についてはどの企業も一定の設備を有しており、衛生管理の重要性の認識も総じて高いものであった。

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4 住村 欣範、グエン コン カン「ベトナムにおける食品安全衛生の現状」, 2011.
https://ir.library.osaka-u.ac.jp/repo/ouka/all/48257/glocol05_065.pdf

5 小川 美香子、濱田 奈保子、湯川 剛一郎「ベトナムの工場内食堂の衛生管理と食中毒予防」,2017.
https://www.jstage.jst.go.jp/article/jasmin/2017f/0/2017f_341/_pdf

しかし、現状の設備は、衛生管理の面から十分な設備が整っているとは言い難く、改善の余地が大きい地点がほとんどであった。

以下にヒアリングの結果得られた開発課題をまとめる。ヒアリングに用いた資料を別添1に示し、ヒアリングメモを別添資料2に示す。

水産加工を中心とするA社は、主にベトナムの大手スーパーや企業給食向けに販売しており、現在輸出は行っていない状況であった。経営の機微に触れる点であるため明確化は避けたが、日本の食品衛生法違反の事例があることから、品質面で輸出ができない状況であることが推測された。消毒用水の濃度管理や供給を隣接する他社工場に依存しており、衛生区のゾーニングが不十分で、容易に交差汚染が生じる施設構造であるため、改善が不可欠と思われた。A社は輸出を目指し、新工場を建設し、その中で衛生管理を徹底していく方針とのことであった。

また、冷凍加工食品とインスタント食品を製造するB社は、輸出を手掛けているが食品衛生法違反の事例もたびたび起こしているメーカーで、衛生区の設定や滅菌の設備は有するものの、消毒用水（次亜塩素酸ナトリウム）の濃度管理を作業員が都度希釈生成する運用となっており、やや複雑な工程であるうえ、チェック体制も不十分であることみられ、改善が必要と思われた。

水産加工工場C社は、食品衛生法違反による積戻し（Ship Back）の実績があり、その際には自社でコストを負担することになるため、衛生管理を徹底する運用を模索していた。一方、次亜塩素酸ナトリウムの使用により、残留塩素などの問題が客先より指摘されており、衛生管理手法の新技術導入を検討しているところであった。

食肉工場E社は、飼料製造および畜産農家への飼育委託、ならびに飼育委託した畜産物の買取と食肉加工を行う会社である。食肉加工段階で、解体に際しては次亜塩素酸ナトリウムを使用しており、ドラム缶で定期調達している。調達先は商社経由で海外から輸入している。供給元のガイダンスに従い、衛生管理を実施していたが、近年バイヤーからの要望の高まりを受け、ISO22000を導入し、より高い衛生基準にする方針を策定した。将来的には消毒液の生成設備の導入を図る計画を有していた。

以上の通り、輸出を手掛ける各社は、衛生管理設備を有しているものの、その管理体制や導入されている設備の質、運用には課題があり、かつ各社ともその問題を認識している状況であった。各社の共通した状況として、ベトナムにおける衛生管理技術の選択肢が少ないという課題を見て取れることができた。そうしたなかで、提案製品の紹介は歓迎されるとともに、導入の提案や、サンプルの拠出、見積りの提示を依頼されるに至った。

１－１－２　政府機関ヒアリング調査結果

ベトナムの食品衛生等に係る政府機関は、保健省（MOH)、農業農村開発省（MARD)、商工省（MOIT）の3省が主たる管轄機関である。

それぞれ、品目ごとの管轄が行われており、その分担は下記の通りとなっている。本調査で対象とする水産製品、肉製品、野菜等については、いずれも農業農村開発省(MARD)の管轄であったことから、農業農村開発省（MARD）へのヒアリングを実施することとした。開発課題に関するヒアリング結果を以下にまとめる。ヒアリングに用いた資料を別

添 3 に示し、ヒアリングメモを別添資料 4 に示す。

表 2　ベトナムの食品衛生等に係る政府機関の管轄範囲

	保健省 （MOH）	農業農村開発省 （MARD）	商工省 （MOIT）
品目	食品添加物 ミネラル水 ボトル入り飲料 機能性食品 その他食品	穀類 食肉、肉製品 養殖魚、水産製品 野菜、果物 卵、卵製品 生乳製品 蜂蜜、蜂蜜製品 遺伝子組換食品 塩 農業製品	アルコール類 ビール類 飲料品 加工乳製品 植物油 小麦粉 澱粉加工品 その他食品
段階	生産過程、集荷過程、一次加工、二次加工、保存、輸送、輸出、輸入		

出典：提案法人作成

農業農村開発省（MARD）へのアクセスに際し、調査団は国際的な調整を担う国際協力局を通してアプローチのうえ、調査内容及び協力依頼事項を踏まえ、必要な専門部署への取次を依頼することとした。

提案内容に関する国際協力局からは、バリューチェーンにおける衛生の課題は、加工ステージだけではなく、収穫後から口に入るまで様々なステージで検討を行う必要があるため、加工だけを対象とするのではなく、全体の管理を踏まえた対策の提案を頂きたいとの意見を得た。この見解には、食肉産業において重大な脅威となっているアフリカ豚コレラの蔓延が背景にある。食肉加工だけではなく、畜舎の衛生管理により、家畜感染病予防への展開について、より高い期待を得た。そこで、調査団としては、当該課題への対策も本調査の中で検討することとした。

加工食品については、日本も重要なマーケットであるが、ベトナムはアメリカ、ヨーロッパなど世界各国に輸出が伸びており、特に衛生管理の改善は民間企業だけでなく政府も取り組むべき事項と考えており、現在農業農村開発省（MARD）だけではなく、横断的な解決を図るため、保健省、商工省、農業農村開発省での「衛生管理チーム」が組織される予定となっており、農業農村開発省がそのチームのリーダーとなる予定であるとのことであった。

さらに、優良事例として普及を促進するために、大規模な企業をまず対象として考えることを推奨され、特定企業の紹介を受けるとともに、パイロット事業の実施についても推奨された。

国際協力局からは、政府の衛生管理政策とともに、企業ニーズなどを明らかにするうえで、以下の専門セクションへの取次を調整頂いた。

ア）NAFIQAD（National Agro-Forestry- Fisheries Quality Assurance Department）

イ）SPS（Vietnam Sanitary and Phytosanitary Notification Authorities and Enquiry Point）（Agro Processing and Market Development Department 傘下の機関）

ウ）DAH（Department of Animal Health）

エ）DLP（DEPARTMENT OF LIVESTOCK PRODUCTION）

これらセクションの役割等を以下に示す。

表 3　農業農村開発省（MARD）における食品衛生管轄部局の役割

	農業農村開発省（MARD）			
	NAFIQAD 農林水産品質保証局	SPS 植物衛生検疫局	DAH 動物保健局	DLP 畜産局
1.規制・基準			○ （動物保健分野）	○ （畜産分野）
2.検査	○ （水産物）		○ （畜産物）	
3.立ち入り検査	○ （水産物）			
4.衛生管理指導/技術普及	○	○ （WTO関連）		○
5.プロジェクト実施				○

出典：提案法人作成

本調査では、上記各専門部局を訪問し、開発課題に関して意見交換を行った。

NAFIQAD からは、最近の輸出積戻しを巡る課題として、①抗生物質、②伝染性微生物、③包装方法、④保管条件の 4 点があり、提案製品が解決可能性のある②の伝染性微生物について大多数であるため、この課題解決に資することを期待するとの見解を得た。

SPS からは、輸出向け企業だけでなく、中小企業が特に衛生課題を抱えている状況であるため､そうした企業への普及を目指し調査頂きたい旨のコメントを得た｡また、加工食品だけでなく、野菜や果物についてもベトナムは大きな生産能力があり、それらの生産者は欧米や日本への輸出を目指しているため、そうした一次産品への適用についても導入対象とすることを推奨された。

DAH および DLP は畜産に係る内容であり、国際協力局より、特にアフリカ豚コレラ対策への使用について高い期待を得ていた。こうした要請を踏まえ、提案法人は日本での家畜防疫に提案製品を活用した事例をもとに資料を作成し、意見交換を行った。その際に用いた資料を別添資料 5 に示す。

アフリカ豚コレラは、強い感染力と致死性を持つ豚の伝染病である。2019 年、アジアで猛威となっており、ベトナムの被害状況は甚大となっている。具体的には、ベトナム全国 48 省・市の 3000 郡・区以上の 3000 村・街区以上で発生し、感染・殺処分された豚は全国で飼育されている豚の約 6.5%にあたる 200 万頭(11 万 7000t)となっている。

養豚産業の国内総生産(GDP)は 94 兆 VND(約 4500 億円)で､農業の GDP の約 10%近くを占め、小規模養豚農家 240 万世帯と大規模養豚農家 1 万世帯の生計に影響を及ぼす

ほか、ベトナム人の食肉消費構成比率をみても豚肉が 70%と圧倒的な割合を占めていることから、緊急な対策が必要となっている。

DHA、DLP ともに、アフリカ豚コレラウイルスの治療法はないと言われているなかで、唯一の対策方法は、当該ウイルスの拡散を防ぎ、畜舎の衛生管理を行うことだけであるとの認識であった。提案製品は、ウイルスの拡散を制御する重要な手段になる可能性があるため、パイロットプロジェクトなどの形で特に養豚産業の衛生改善支援を期待したいとの意向があった。加えて、近年ベトナムの畜産物については、伝染病などへの感染を防ぐため、大量の抗生物質が投与されているが、これらの健康影響も懸念されている中で、衛生管理の徹底による抗生物質投与の削減についても、提案製品により解決を図ることが期待できるとの見解を得た。

１－１－３　その他の技術適用可能性と開発課題

後述する「第 3 章　ビジネス展開計画」における「３－４　進出形態とパートナー候補」に関連して、現地の貿易事業者との面談を行った。その際、貿易事業者の見解として、当提案技術を食品加工における衛生課題以外にも、現地の開発課題である悪臭の対策への活用可能性について示唆があった。

日本においては、悪臭防止法が施行されており、悪臭原因物質の規制があるが、ベトナムにおいては未施工であり、悪臭が問題化しつつあるという。なかでも、紡績産業における絹紡績糸は選除繭や製糸残糸などを腐化精錬したものを原料とするため、精錬時の悪臭等作業環境の劣悪さを生んでいる状況であるという。紡績関係企業へのヒアリングを試みたものの、企業にとっては負の側面であるため、直接の現状把握はできなかった。そこで、こうした課題に取り組むホーチミン工科大学と協力し、課題解決にアプローチする可能性を確認した。ヒアリング内容を別添資料 6 に示す。

ホーチミン工科大学からは、悪臭の課題解決に当たっては、大気環境や労働環境に係る法令において、悪臭物質を規定し基準値を設けることで、法的に低減を図ることが必要との見解を得た。また、そうした法令に伴う基準作りに際して大学が役割を担うことができるため、連携可能性を検討したいとの要請を受けた。

また、当技術を活用することで、有機性廃棄物からコンポストを製造する研究プラントの悪臭対策に適用したい旨相談があった。廃棄物問題が深刻化する中、ホーチミン工科大学では有機性廃棄物の分別による再利用促進を図っているが、有機性廃棄物を発酵させ堆肥化するプロセスにおいて、発酵菌の代謝に伴う腐敗臭等が問題となる。研究プラントでは、建屋内で発酵設備を運転しており、悪臭を伴う排気をスクラバーにより軽減し大気放散しているが、臭気を取り切れない状況があるという。

提案製品は、日本における同様の施設において、スクラバー内の水にレドックスターを滴下し、防臭効果を高める事業を実施した経験があり、本内容にも適用可能であると考えられ、今後詳細な情報交換を行うこととした。

以上のとおり、労働環境や都市環境に関連し、悪臭についても開発課題が存在することを確認することができた。

１－１－４　開発課題に関する総括

食品衛生管理に関する開発課題として、輸出向け産品の生産を行う大企業であっても、設備や運用に課題を有しているケースがあり、改善が必要であると考えられる状況であった。もっとも、本調査対象は「日本への輸出を行っており・かつ食品衛生法違反の事例のある企業」を抽出しているものであり、違反事例を有していないトップランナー企業は日本や欧米と同等の衛生管理水準を有しているものと思われるが、そうしたトップランナー企業の先進事例が公開・普及されていないため、改善策の検討や導入に逡巡している状況との印象を受けた。衛生管理技術や方法の選択肢が少なく、どのような技術の導入が適切かの判断がしにくい状況であるとみられた。

政府機関においては、衛生管理を徹底するための規制、法令、検査体制などの整備を推進している一方で、上記のような企業ニーズを支援する体制は十分ではないようであった。ただし、政府として、衛生管理を含めた食品安全衛生の改善に積極的に取り組んでおり、調査団の技術提案を歓迎する意思を各機関から得る事ができた。その背景にある開発計画や政策、法令等の詳細については次項に示す通りである。

その他の開発課題として、悪臭に関して社会問題化しつつある状況であることを把握し、提案製品導入による改善を提案できる可能性があることを把握した。

１－２　当該開発課題に関連する開発計画、政策、法令等

上述の通り、ベトナムでは、農水産業の付加価値を高めることで、国際競争力を強化し、同分野を主力産業の１つに発展させる方針を有している。

具体的には、「社会経済開発 10 か年戦略」（2011～2020 年）、第 10 次社会経済開発 5 か年計画（2016～2020 年）のなかで、食品とその原料の衛生と安全性の品質管理、効率改善が課題に挙げられている。

本調査では、上記の開発戦略や計画の下での政策、法令、及び基準における衛生に係る事項の抽出と分析に加え、関連省庁へのヒアリング調査により、他の政策等についても網羅し、政策の方向性や法体系を調査した。

・開発計画、政策

まず、ベトナムの具体的な国際競争力強化の政策として、「農業構造の再編計画の承認（2017 年-2020 年）首相決定 No.1819」がある。当該決定の中で、農業分野を成長産業に位置づけ、輸出による付加価値向上の促進が目標とされている。また、ベトナムは 2007 年に WTO に正式加盟したことを受け、WTO 加盟国の義務を踏まえ、首相決定 No.147/2008/QD-TTg として、衛生植物検疫措置協定に基づく国家行動計画を策定しており、その中で以下の 5 項目を国家行動計画として規定している。

① WTO が承認した約束事項に基づく衛生植物検疫措置協定の包括的実行
② 農林水産業及び食品加工業に関する優位性の開発と負の影響の最小化
③ 毒性化学品や有害微生物に汚染されていない良質な農産物・食料の供給による国内外の消費者の食品安全衛生の補償
④ 国際市場におけるベトナム産品の競争力強化と市場性の改善、流通促進
⑤ 輸入品によりもたらされる病害虫からの国内農林水産業の保護および生態環境保全並びに生物資源の多様性の保護

また、水産物については、水産業振興マスタープラン（2030 年）首相決定 No.1445 が策定されており、付加価値の高い輸出品の割合を 2020 年目標の 50%から 60%に引き上げ、輸出率を 2020 年目標の 1100 億米ドルから 2000 億米ドルに倍増させる計画を策定している。こうした取り組みにも関係する食品安全衛生に係る政策として、保健省決定 No.46/2007/QD-BYT のなかで、食品添加物のリスト及び食品中の生物学的および化学的汚染の最大レベルの規制を進めることが示されている。

・法令

食品安全を担保する基本法令として、食品安全法「LAW No. 55_2010_QH12_LAW ON FOOD SAFETY」が規定されている。食品安全に係る基本的な義務の他、第 3～4 条には、工場への立入検査に関する取り決めや、第 7～9 条には、食品事故が生じた際の対応策と報告義務等の内容が明記されている。

具体的な衛生対策や基準については、規格・基準に準じることが求められている。関係する規格・基準を以下に示す。

・規格・基準

食品中の微生物に係る技術規制として、QCVN 8-3_2012_BYT_CIRCULAR_05_2012 がある。当規制では、食品において遵守しなければならない基準として、大腸菌群数などの基準が定められている。また、食品安全にかかる管理体制に関しては CIRCULAR No.13_2014 としてガイドラインが定められているほか、食品安全法に則った管理実施の要領書として、DECREE_No. 15_2018 が発行されている。

別途、水産生産中の食品衛生安全条件に係る国家技術規格として、QCVN 02-14-15_CIRCULAR No.82_2009 が定められているほか、水産物の加工や工場に関する技術規格として、QCVN_02-01_2019_BNNVPTNT がある。

また、洗浄工程に際して、特に残留塩素の濃度を規定した規格が QCVN 01:2009/BYT である。これは、飲料水の品質に関する国家技術規格であるが、当規格のなかで、「水産物を洗う水・手洗いの水・洗浄用の水については、残留塩素が 0.3～0.5 ㎎/L でなければいけない」との記載がある。

検査に関しては、CIRCULAR No.03/2011/TT-BNNPTNT において、水産食品の安全基準を満たさない食品の追跡・回収に関するガイドラインが示されている。また、輸出用の魚介類食品の安全性の検査および認証として、CIRCULAR No.48/2013/TT-BNNPTNT があり、輸出用の魚介類の安全性の検査および認証に関して、No.04/2019/VBHN-BNNPTNT が統合文書の形で示されている。

このように、食品安全に係る規制・基準はさまざまな法令文書の形で整備されつつある状況となっているが、企業ヒアリングの結果からは、十分にそうした規制・基準の情報が浸透していない印象がある。むしろ、輸出に係る企業では、輸出先の企業からの要請を基に衛生管理を進めており、より高い基準である HACCAP や ISO に準じた対応を進めているように思われた。

１－３　当該開発課題に関連する我が国国別開発協力方針

我が国では、ベトナムに対し、国際競争力の強化を通じた持続的成長の達成に向けた協力メニューとして、農林水産業の高付加価値化（バリューチェーン）を掲げており、その詳細は以下の通りとなっている。

- 重点分野１：成長と競争力強化
- 開発課題１－２：産業競争力強化・人材育成
- 関連する協力プログラム：農業高付加価値化プログラム

上述の通り、本調査では、提案法人の技術である食品衛生課題の解決を図ることを目的としているが、食品の高付加価値化において衛生管理技術の向上は不可欠な要素であり、上記開発協力方針と関連性は強いといえる。

１－４　当該開発課題に関連する ODA 事業及び他ドナーの先行事例分析

先行事例としては、2014 年から開始された FAO による「農産物および水産物の品質向上のためのバリューチェーンに沿った食品安全管理能力の強化事業（Strengthening capacity of food safety management along the value chain for better quality of agricultural and fishery products)」がある。当該事業では、農林水産物の食品安全管理システムの強化、農水産物の品質・安全性の向上、生産、加工、保管工程の食品安全の向上を目的として、管轄機関（MARD、MOH、NAFIQAD 等）の国内の食品安全管理に係る計画・政策の策定を支援したものとなっている。

また、2015 年には、世界銀行による「ベトナム家畜の競争力と食品安全に係るプロジェクト(Vietnam Livestock Competitiveness and Food Safety Project)」が実施されており、ハノイ、ハイフォン、ホーチミンを含むベトナム国内の 12 市等の小規模の畜産農家世帯を対象に、生産効率の向上や、畜産物のサプライチェーンにおける食品（肉製品）安全・衛生の強化のための支援が行われた。

さらに、2019 年、JICA は「農業・水産食品の安全確保のための検査・農産食品品質コンサルティングセンター能力強化計画」を対象として 12 億 0400 万円を限度とする無償資金協力の贈与契約を行った。同案件は、農業・水産食品の安全確保のための検査・農産食品品質コンサルティングセンター（RETAQ Center : Refarence Testing and Agri-Food Quality Assurance Centrer）の検査体制構築に必要な機材およびこれら機材を有効に活用するための設備を整備することで、食品検査体制の拡充および検査能力向上を目指すもので、これにより、ベトナムの農水産食品の安全性の確保や WTO/衛生植物検疫措置協定（Sanitary Phyto Sanitary Measures）の履行促進が期待される。

RETAQ センターの設立は、これまで十分な管理ができていなかった原料を含む農産関連品の品質、食の安全とトレーサビリティの担保を目指し、関連施策策定、関連国際協力業務の実施、食品表示ラベルの管理、食品安全に係る事故処理、国家モニタリング検査の実施調整、トレーサビリティ確保などの役割が規定されている。

提案製品は､企業サイドの衛生管理向上を目指すものであるが､提案製品を導入しても、その効果が数値的に十分証明できなければ、他の技術との価格差などにより導入が図れないおそれがあるため、JICA の「農業・水産食品の安全確保のための検査・農産食品品質コンサルティングセンター能力強化計画」により検査体制などが向上することで、食品加工メーカー各社の衛生課題がより明確になることを通じて、対策の選択肢として位置付けられることが期待できる。

第２章　提案法人、製品・技術

２－１　提案法人の概要

提案法人のアール・イー・ディー株式会社（英略：RED）は、2016 年 4 月 1 日に設立し、2018 年現在 3 期目となっている。

２－２　提案製品・技術の概要

提案法人は、高い除菌 効果を得られる次亜塩素酸水を生成する次亜塩素酸水生成器「レドックスター」の製造・販売、また衛生管理に関するコンサルティングを行っている。図 1 に、「レドックスター」及び関連製品群を示す。また種々の除菌剤の中から、環境や人体にも優しい次亜塩素酸水に注目した活動を行っており、食品工場、病院、学校、老人介護施設、ホテルなどに導入されている。

出典：提案法人作成

図 1　レドックスター製品群

２－３　提案製品・技術の現地適合性

企業機密情報につき非公表

２－４　開発課題解決貢献可能性

本事業で対象とする開発課題は、前述の通り「国際競争力の強化を通じた持続的成長の達成」のための「農林水産業の高付加価値化（バリューチェーン）」である。

本事業において対象とする産品は、農水産物（食肉、卵、野菜、魚介類）であるが、こうした産品および加工品の付加価値は、衛生以外にも、鮮度、品質、味、栄養、添加物などといったさまざまな要因により決まる。しかし、衛生管理は食品の価値にとって最も基本的な条件であり、本技術の適用により、ベトナムの食品の高付加価値化につなげる基本的要件を満たすことにつながり、「農林水産業の高付加価値化（バリューチェーン）」の基盤となり得る。

農業農村開発省の傘下である農林水産品質管理局（NAFIQAD）によると、近年の積戻しや衛生課題のトレンドとしては、①抗生物質、②伝染性微生物、③包装方法、④保管条件の４点がある。本製品は②の課題解決に貢献する可能性があるほか、畜産業における畜舎の衛生管理に用いることを通じて、伝染病等予防のための抗生物質使用も低減させることができる可能性があるため、①についても貢献する可能性がある。

上述の通り、食品加工工場においては、輸出のため衛生管理を改善する意思があるものの、導入技術や運用改善の具体的な方策について情報が少なく、導入技術の選択肢も少ない状況であることを把握した。また、現在の衛生管理手法も、運用コストに一定の費用をかけており、設備更新に際しての導入費用についても準備していることがわかった。

こうした中で、ベトナムにおいて衛生管理の新たな選択肢として提案製品の普及を図る素地があり、普及が進んでいくことにより食品衛生の向上が図られ、ベトナム産品の価値の向上に寄与することができると考えられる。

また、畜産については、畜舎の衛生管理の向上により、伝染病の蔓延を防ぎ、抗生物質の使用削減にも貢献することで、畜産業の伝染病等に係る損失を低減できる可能性がある。

2019 年のアフリカ豚コレラの蔓延においては、前述の通りベトナムで飼育されている豚の約 6.5%にあたる 200 万頭(11 万 7000t)が殺処分となっており、農業の GDP の約 10%近くを占める養豚業に甚大な影響を与えている。アフリカ豚コレラのワクチンは現状無いことから、衛生管理による予防が急務であり、提案製品は日本において畜舎の防疫に適用した実績を有するため、同様の対策を普及することを通じて、畜産業の経営安定化への貢献にも寄与できる可能性がある。

第３章　ビジネス展開計画

３－１　ビジネス展開計画概要

事業モデルは、提案法人独自で商業展開するケース（以下、「商業展開」）と、中小企業海外展開支援事業における普及・実証・ビジネス化事業（以下、「実証事業」）を経てビジネス展開に移行する２つのケースを想定した。

・商業展開計画

商業展開を基本方針として本調査を進めるものの、調査において把握する市場ニーズ、具体的なユーザー、制度・政策等の情報、関係政府機関の要請状況等に応じて、合理的と判断されれば実証事業の活用も視野に入れることとした。

食品加工業に対する提案製品の導入は、調査の結果、ビジネスベースでの展開が十分に可能であることが把握できた。各企業は、輸出先の要請などから衛生管理に高い意識を有しており、すでに次亜塩素酸ナトリウム等を利用した衛生管理を行っているものの、導入技術の品質や運用面から、十分な衛生管理に至っていない状況であり、提案製品のような技術をまさに探しているところであったため、ヒアリング先の各企業からは高い関心を得る事ができ、サンプルの提示や見積もり依頼を受けるに至っている。

提案法人は、次亜塩素酸水生成器の販売だけではなく、同設備を用いた衛生向上ノウハウをユーザーに提供するコンサルティングサービスも展開している。ベトナムにおいても、ハード面だけではなく、こうしたソフト面の支援も実施することが、ベトナムにおける食品の安全向上のために有効であると考えられ、衛生管理トレーニングや管理技術の移転もサービスメニューに加えることができる見通しである。

このような取り組みについて、農水産物の衛生管理に関して管理監督を行っている農業農村開発省（Ministry of Agriculture and Rural Development: MARD）からも歓迎の意向を得る事ができ、具体的な機器の導入先候補先を紹介頂くなどの協力を得ることができた。

また、上述の調査結果については、良い成果であるとの見解を頂くことができ、サンプルの輸出や提案製品の導入に際して、通関等で問題があった場合に支援する用意があるとのコメントを得る事が出来た。

今後、農業農村開発省（MARD）のバックアップを得つつ、サンプルの輸出や見積もりの提示を引続き進め、商業ベースでの展開を図る計画である。

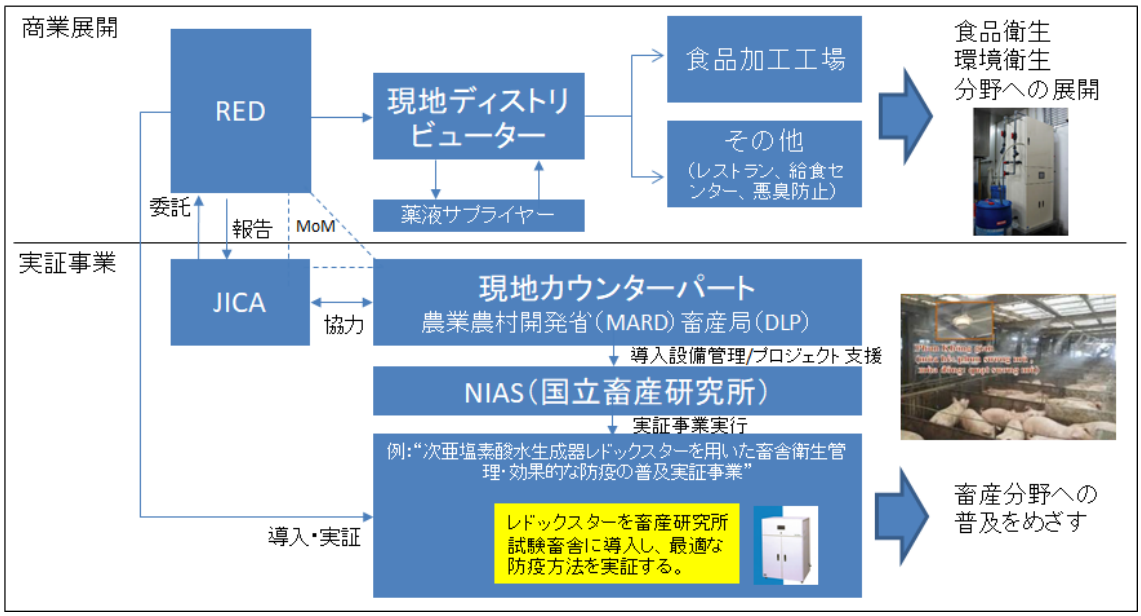
・実証事業計画

上述の通り、ビジネス展開を前提とした調査を進めた結果、食品加工については各企業とのニーズが適合したため、今後ビジネスベースでの展開を期待することができている。

一方、農業農村開発省（MARD）からは、アフリカ豚コレラをはじめとする家畜の感染性疾病への対策にも高い期待を寄せられているところである。提案法人は、この期待を受け、畜舎の衛生管理や防疫に係る対策の提案を進めたいと考えているところであるが、食品加工とは異なり、防疫には建屋や給餌、飼育状況など実態を踏まえた設備計画を検討す

る必要があるうえ、効果を確実なものとするため、関係機関との基準調整や研究機関との調整等、民間企業担当しては対処が難しい課題もある。

そこで、防疫分野への参入に際しては、ビジネス展開とは別途、「中小企業・SDGs ビジネス支援事業における普及実証事業」を活用した事業化を図りたい。防疫分野に特に高い期待を有していた畜産局（DLP）からは、衛生管理システムや薬品を使用してアフリカ豚コレラの対策を検討している National Institute of Animal Sciences（Vice-president）との連携を推奨されたところである。今後、これらの機関との情報交換を通じ、プロジェクト提案に向け準備を進める方針である。



出典：提案法人作成

図 2　ベトナムにおける事業モデル

３－２　市場分析

企業機密情報につき非公表

３－３　バリューチェーン

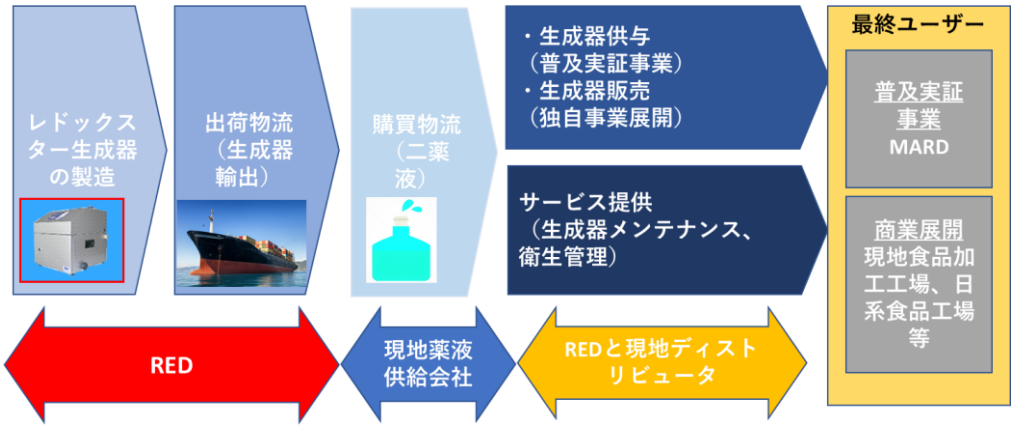
提案製品の普及に係るバリューチェーンにおいて、「レドックスター」の製造、検査、出荷物流については、国内販売同様に提案法人が担う想定である。

集配送、通関、混載仕立て、倉庫業務といった国際輸送に係る役務については、一般的な輸出と同様、フォワーダーが担う体制とする。現地での据え付け、試運転調整、次亜塩素酸水の品質検査については、提案法人の技術者が現場に赴き、対応する。

また、オペレーションに必要となる薬液については、現地から購入できるよう、供給体制をあらかじめ確認し、エンドユーザー自身による調達を依頼する。なお、薬液は、次亜塩素酸ナトリウムと塩酸であるが、次亜塩素酸ナトリウムの濃度は 12%もしくは 6%であること、塩酸の濃度は 10%（8.5%が推奨値）以下でなければならないが、当該濃度での調達についても問題ないことを確認した。さらに、日本の場合、両薬液共に「食品添加物」として流通しており、食品加工の現場で利用できる法的根拠があるが、ベトナムにおいても同様の取り扱いが可能であることを確認した。

また、メンテナンス等についても、当初は提案法人が定期検査を行う体制を構築し、アフターケアを十分に行う体制とする。

将来、本格的な現地製造・販売を拡大するにあたっては、現地のディストリビューターと協力し、販売・メンテナンス体制を整える。現地のディストリビューターの候補としては、日本（海外）との輸出入実績を有している企業や、食品加工場に対し、生産機材や消費財等を供給している企業、日系資本の現地商社、次亜塩素酸水の原料となる薬液を販売する企業等といった、提案製品に関連する商流に何らかの形で関与している企業が望ましい。そこで、こうした実績を有する企業から候補先を絞り込み、協業条件等について検討を行った。進出形態とパートナー候補については、次項で示す。

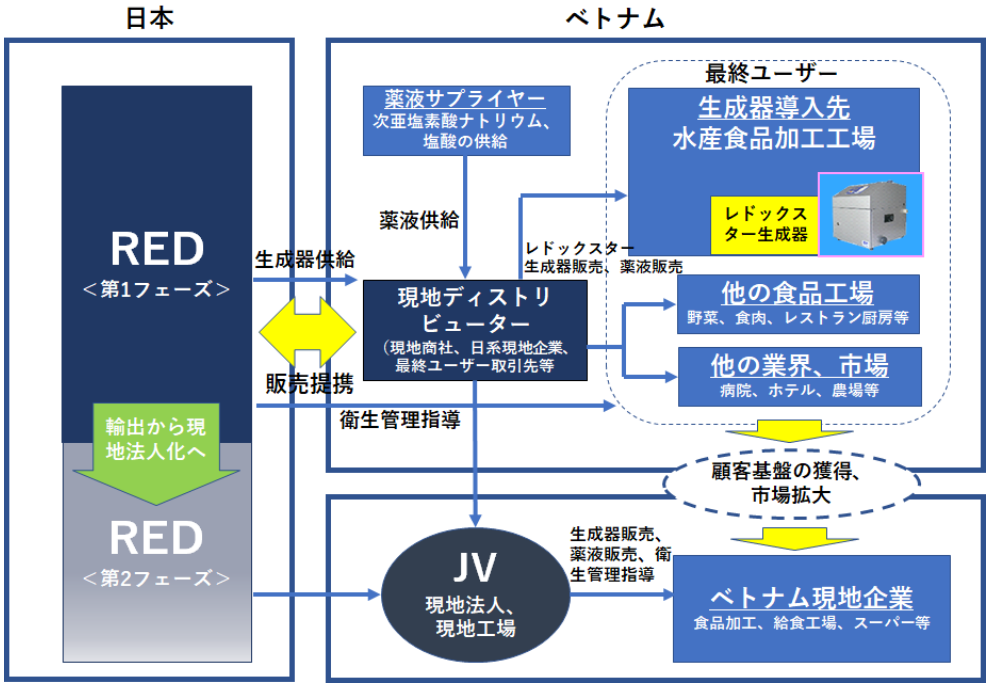


出典：提案法人作成

図 3　本事業のバリューチェーン

３－４　進出形態とパートナー候補

提案製品の販売にあたって、ビジネス展開初期は受注生産による輸出販売体制を構築することを目指す。ベトナムは、日本との距離も比較的近いことから、現地企業への衛生管理指導も、日本からの渡航により十分可能とみている。将来的には、現地工場の設置による現地進出といった直接投資も視野に入れる。本調査において現地パートナーとなるディストリビューター等を絞り込み、販売提携契約を行う。将来的に営業・財務基盤が整った時点で、同ディストリビューターと JV 協定等による協力契約を締結し、現地での生成器の組み立て生産等を行う現地事業会社を設立し、事業化を行うことを目指す。本調査では、パートナー候補を選出したうえで、協業条件などを整理するとともに、協業計画の策定を行う。



出典：提案法人作成

図 4　想定する事業実施体制

事業化スケジュールとしては、3 段階を想定している。以下に、各段階の目標年月を示す。

＜第 1 フェーズ：現地ディストリビューターとの販売提携による事業＞

・調査：2019 年 4 月～2020 年 3 月
・現地ディストリビューターとの販売提携：2020 年 4 月
・普及・実証・ビジネス化事業：2020 年 7 月～2021 年 12 月
・現地ディストリビューターとの JV 協定締結：2021 年 12 月
・JV 協定に基づくレドックスター生成器の販売：2022 年 1 月～

＜第２フェーズ：現地法人の設立、現地工場の設置による事業＞

・現地法人の設立：2024 年 6 月
・投資ライセンス等の取得：2024 年 12 月
・用地確保・現地拠点の建屋等の選定：2025 年 4 月～2025 年 12 月
・事業開始：2026 年 1 月～

３－４－１　進出形態の検討

当初計画では、2 つの段階として、第 1 フェーズ、第 2 フェーズに分けて検討するとしていた。ここでは、第２フェーズの会社設立について以下の検討を行い、その検討結果を踏まえて、各フェーズの見直しを行った。

現地での会社設立については、JETRO や日系のコンサルティング企業がサービスを行っているが、今回は、基本ともいえる以下の JETRO の「改定投資法・改定企業法に基づく　ベトナム拠点設立マニュアル（2018 年ジェトロハノイ事務所)」[6]を参考に RED 社の事例を検討した。

まず、進出の形態はさまざまであるが、現地で法人として活動を行うのであれば、１）駐在員事務所の設立、２）会社の設立が選択肢となる。１）の駐在員事務所については、事業活動が限られており、その事業活動とは、「連絡」、「事業協力活動の促進」、「市場調査」、「その他ベトナムの法律において認められる活動」となっており、営業活動は認められない。多くの企業が、現地で駐在員事務所を設立しているが、実態としては市場調査及び連絡活動を通して、日本国の本社が現地ユーザーと契約する形となる。２）の会社設立を検討する場合には、会社形態として以下の形態がある。

・一人有限会社：所有者が 1 つの組織または 1 人の個人である有限会社
・二人以上有限会社：所有者が 2～50 人の組織または個人である有限会社
・株式会社：3 人（組織または個人）以上の出資者が必要。出資者数の上限はない。定款資本は株式と呼ばれる均等な多数に分けられる。
・合名会社：会社の共同所有主として、共同経営する合名社員 2 人以上によって設立される形態。

上記の内容は、2014 年公布の企業法（第 68/2014/QH13 号)に規定されている。JETRO によるとほぼ 8 割以上が有限会社の設立をしているとされており、株式の発行を検討していないのであれば、上記有限会社となる。

会社を設立する際には、出資金額、定款、資本金、事業内容、投資実施場所、人材採用などの計画をまとめ、投資登録証明書（Investment Registration Certificate：IRC）と企業登録証明書（Enterprise Registration Certificate：ERC）の申請を行い、証明書を取得する必要がある。これらの申請には、日本での会社の登記簿、代表者、公的な資料（公証されたもの）が必要となる。実際に会社設立の予定を決めた場合には、逆算して取得日程の計画を立てる必要がある。特に会社代表者については、無犯罪証明書など日ごろなじみのない書類も含まれるため、時間的な余裕を見る必要がある。

提案法人の場合、進出により製造を伴う場合と販売のみを行う場合により、申請の行政

[6] https://www.jetro.go.jp/ext_images/_Reports/02/2018/ed272f032fec21e9/vn_manual201811.pdf

機関が異なると推測される。例えば、販売を目的とした場合には、投資計画局、一方、工場などによる進出の場合には、工業団地・輸出加工の管理委員会などになる。

提案法人においては、具体的な製品・営業項目が今回の pH 調整機器の販売やメンテナンスと具体的に定まっているため、投資規制分野として投資禁止分野/条件付き投資分野の確認が可能である。

まず、禁止分野については、前述のガイドブック P.8 の（1）投資禁止分野一覧には該当しない。次に同ページの条件付き投資分野についても特に該当するものはないと考えられる。出資比率制限のある投資分野については、「道路運送サービス（貨物運搬)」については、外資規制がかかり、外資は 51%以下の出資しか認められていない。従い、提案法人が国内で行っている pH 調整器の製造・販売・原料の運搬・メンテナンスなどを考えると、各項目で外資規制などの制限を受ける可能性がある。よって、ベトナム進出時には、自ら実施する事業内容と、投資制限などがある事業分野を整理したうえで、投資制約のある分野については分担が可能な現地企業があるかを探索するとともに、当該企業と協力して事業を実施する可能性を調査するなど、ビジネスフォーメーションについて検討を行う必要がある。

特に、ライセンスの申請については、コンサルティング会社などを通して実施することが多いため、ベトナム人スタッフとの認識の違いにより、時間を要することもある。

例えば、提案法人の英文パンフレットには、「次亜塩素酸ジェネレーター」と記載されているが、機材としては「pH 調整機器」となっており、このような複数の意味を併記する場合、ベトナム側が混乱する可能性がある。企業側が混乱を避けるため製品やカタログをわかりやすく表記を行うとともに、表記を統一するなどの配慮も重要である。

さて、現地進出に際しての具体的な手続きを以下に示す。実際には、タイムテーブルを作成し、会社設立までのスケジュール管理を行う必要がある。例えば、ガイドブック等には記載されないものの、日本人駐在員が居住するアパートの契約などが必要となるため、そのような予定も踏まえつつ、現実的な工程を検討し、管理する必要がある。

1）	投資登録証明書の申請
2）	企業登録証明書の申請
3）	会社印の作成
4）	会社設立の公示
5）	銀行口座の開設
6）	事業ライセンス
7）	VAT インボスの印刷
8）	事業性の申請の申告及び納税
9）	外国人に対する労働許可書の取得
１０）	外国人に対する商用ビザ・就労ビザ・一時滞在許可証
１１）	賃金テーブルの作成
１２）	強制保険の申告、納付
１３）	就業規則の作成・登録
１４）	労働協約の送付
１５）	環境に関する各種手続き

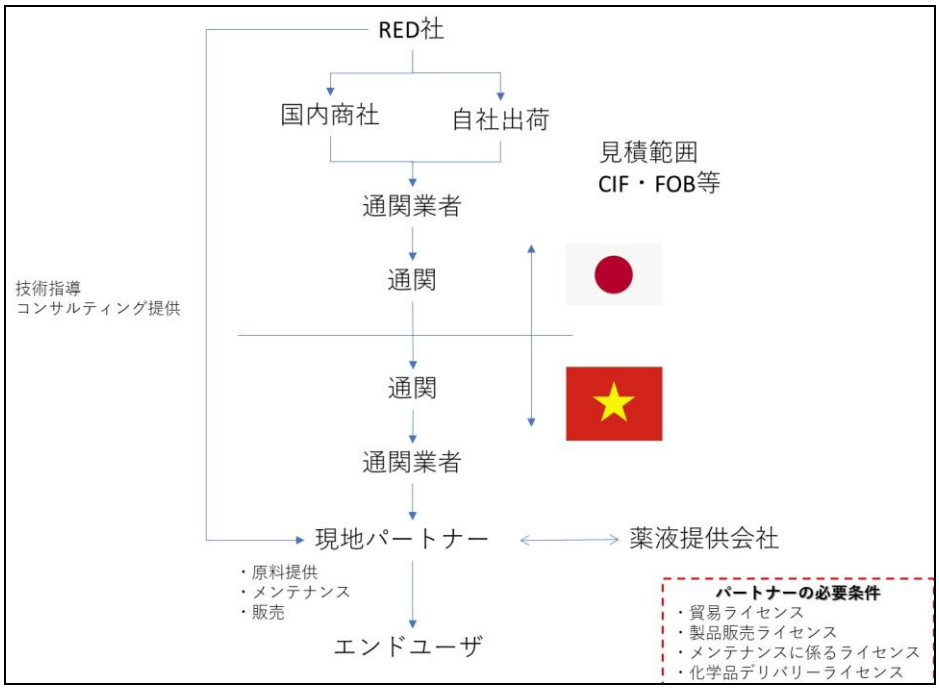
１６）　チーフアコアウンタントの任命

現地の会社設立等の制約を踏まえると、現地でメンテナンス等を担う従業員２名の雇用については、実際には現地法人の設立後となり、当初予測の第１フェーズについては、国内生産基盤をベースとして、日本からの輸出とし、出張ベースでメンテナンスの対応をパートナーに習得してもらう形が現実的といえる。

日本からの輸出については、図１０に示したように、初期段階においては、国内商社を関与させ、輸出についての知識を習得し、その後自社出荷へと段階を踏む方法を検討している。

一方、現地パートナーについては、現地の会社法によると各種ビジネスライセンスが必要条件となりそうである。

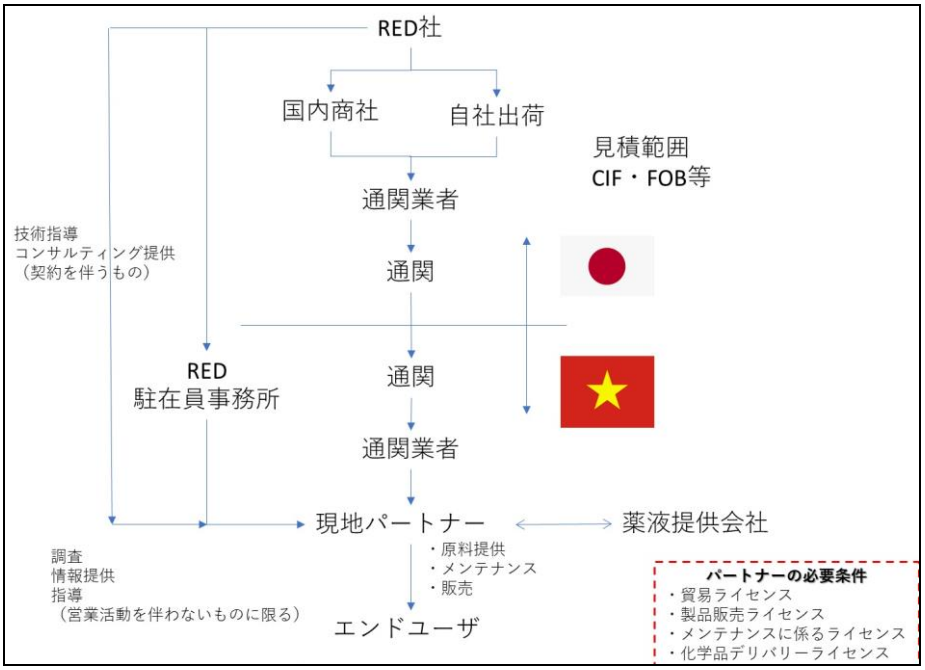
例えば、原料供給の化学系企業からのヒアリングによると、化学品の取り扱いやデリバリーについてもライセンスが必要となっている。従い、機材のメンテナスと化学品の取り扱いを分ける必要も生じる可能性が確認できた。



出典：提案法人作成

図 5　輸出をメインとした事業展開

次に、第２フェーズについては、大きく３つに分けて考える必要が生じた。

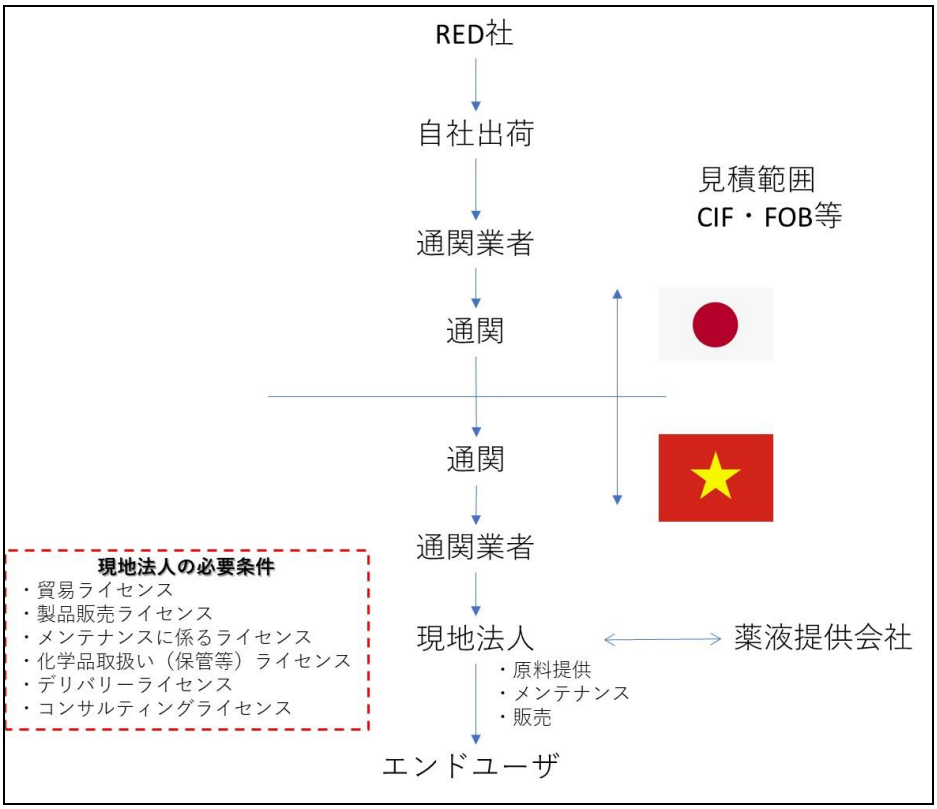


出典：提案法人作成

図 6　輸出をメインとした事業展開

まず、第一に、図 11 に示したように、第 2 フェーズについては、まず現地駐在員事務所を設置することも検討に値する。駐在員事務所は、前述のように営業活動は禁止されているが、情報収集・調査業務は認められている。よって、会社設立までの間さらに情報収集を行うことや、現地パートナーとの交渉・意思疎通のための段階としては有効な方法とも言える。ただし、基本的には、契約行為は行えないため、日本側の本社がすべてベトナム側と契約を行うことになる。本調査では、駐在員事務所の設置などを見越し、サービスオフィス提供企業へのヒアリングを行い、価格や条件の確認を行った。ヒアリング結果を別添資料 9 に示す。

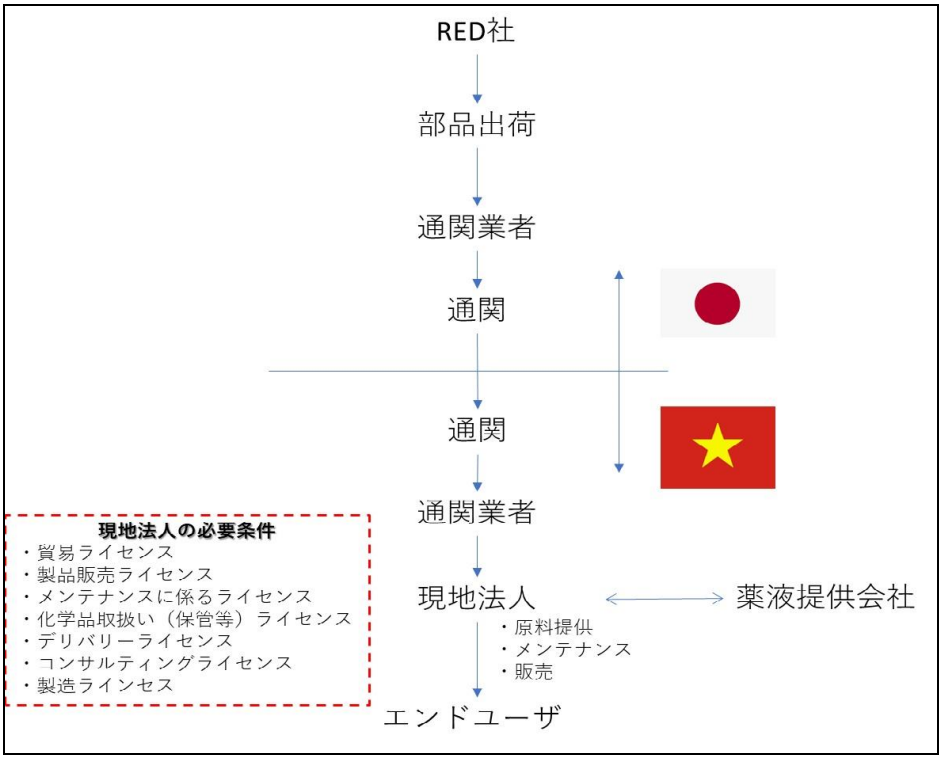
次に、第 2 フェーズの最も重要な点として、図 12 に示した販売に係る現地法人設立が考えられる。この場合には、自らの現地法人がどこまでのサービスを実施するのか、外資規制の有無を確認する必要がある。今回の検討では、前述のように化学品の運送については、外資規制の対象となっており、日本側だけの出資では困難と判断し、現地パートナーの出資もしくは、日本と異なるビジネスモデルの検討が必要と思われた。例えば、薬液については、薬液供給企業と連携するなどして、日本の品質を担保する方法を検討する必要があることが分かった。



出典：提案法人作成

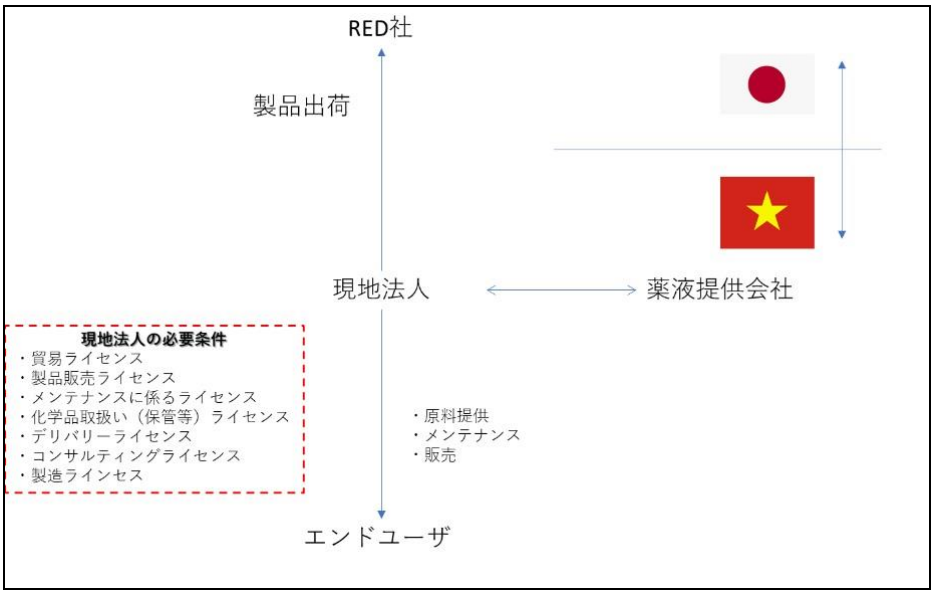
図 7　現地法人を設立した事業展開（販売）

最後に、第 2 フェーズのうち生産活動を含めて考えると図 13 に示した事業展開となる。製造といっても当初は、日本から部品を供給し、現地で組み立てを行う形が現実的であり、その後、最終的には現地で部品調達が可能となり次第、図 14 に示した形となり、場合よっては製品を日本へ輸出するなどのビジネスにつなげることもできるかもしれない。



出典：提案法人作成

図 8　現地法人を設立した事業展開（製造・販売）



出典：提案法人作成

図 9　現地法人を設立した事業展開（製造・販売）

３－４－２　パートナー候補の検討

上記「第 2 章　提案製品・技術の現地適合性」における「③オペレーション及びメンテナンス」で示した通り、現地の有力な協業先として、ホーチミンを拠点とする日系のビルメンテナンス・清掃会社とコンタクトすることができた。

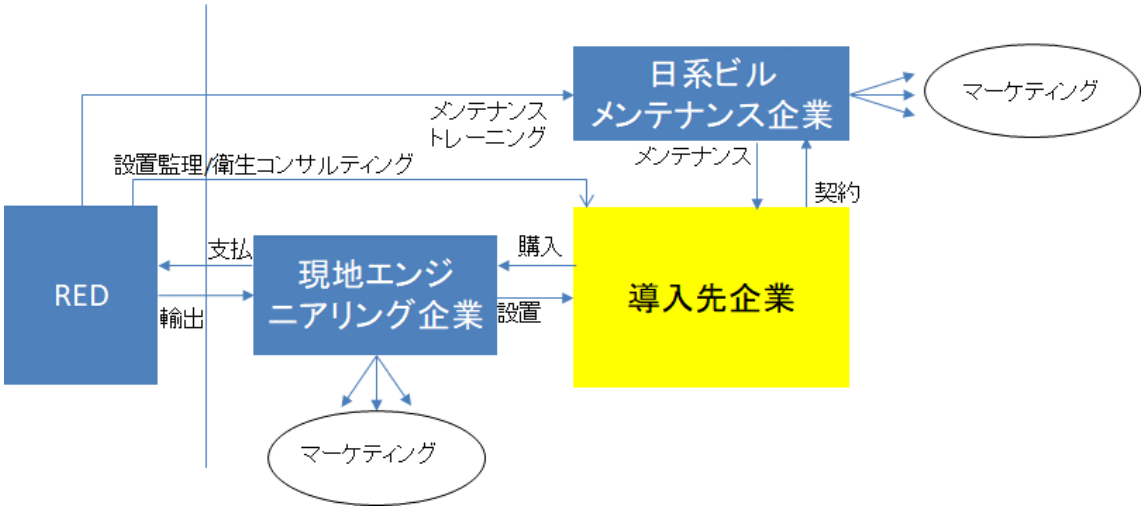
当該企業は、2007 年から日本人 2 名で創業し、作業員は 250～260 名で、日系のビルや工業団地の植栽や害虫駆除、清掃もサービスとして行っている。今後、環境に関連した業務を行いたいと考えており、提案法人との連携について協議を進めることとした。当該企業との意見交換内容を別添資料 7 に示す。

また、工場の設計・施工やクリーンルームの設置等を行う現地エンジニアリング企業にもアクセスすることができた。当該企業は、食品加工工場を含め、現地の工場の実態やニーズに知見があるとともに、各所とのネットワークも有しており、ニーズの特定やアプローチが容易になることが期待できる。また、日本の各種装置の輸入実績や、貿易ライセンスも有していることから、連携することでスムーズな輸出を図ることができる。

当該企業との協議内容を別添資料 10 に示す。

上記 2 社についての整理は、日系ビルメンテナンス企業については主にメンテナンス/薬液供給を、現地エンジニアリング企業については機器導入の際の設置等の手配を主な役割とし、双方強みのある市場へのマーケティングを依頼しつつ協業を図る計画である。当該体制のイメージを出典：提案法人作成

図 10 に示す。



出典：提案法人作成

図 10　パートナー企業との体制イメージ

３－５　収支計画

企業機密情報につき非公表

３－６　想定される課題・リスクと対応策

本事業に係るリスクとしては、まず原料及び使用する化学物質の使用に係る規制がある。現地調査においては、すでに類似化学物質の使用が確認されているが、法的な規制値を確認し、適正利用を図ることが必須である。

本調査では、農業農村開発省傘下の農林水産品質管理局(NAFIQAD)へのヒアリングにより許認可取得の要否と共に、必要な場合の手続きを確認し、リスク回避を図った。保健省決定 No.46/2007/QD-BYT に食品添加物のリスト及び食品中の生物学的および化学的汚染の最大レベルの規制が記載されており、第 12 項目の第 136 目には「次亜塩素酸塩」の情報を確認することができた。つまり、日本と同様、ベトナムにおいても、次亜塩素酸水が食品添加物として扱ってよいことがわかった。

別の観点からは、現地協業企業の選定にあたり、パートナーリスクを認識しておく必要がある。これについては、①衛生管理に係る機材を製造している企業もしくは衛生管理機材を輸入といった実績のある企業を選定すること、②複数のパートナー候補を確保し、選択肢を広げておくこと、③与信や食品加工企業からの評判なども参考にしつつ、優良なパートナーを選定することがリスク回避につながると考えられた。本調査では、日系を中心に複数の企業との協業可能性を検討し、役割や利益分配等に関する取り決めを協議しているところである。また、情報漏洩やバックエンジニアリングによる技術漏洩とそれに伴う類似品等が普及するリスクを最小化するため、商標や知財管理に関しても検討を行う計画である。

環境・社会面のリスクとしては、薬品等を扱うことから、適正な薬品使用がなされず、従業員の健康や製品の安全を脅かすリスクが考えられる。よって、提案製品だけではなく、その周辺に係る安全管理についても十分に調査・検討したうえで、薬液などの管理体制を整えておく必要がある。そこで、協力企業を指定し、取り扱いの研修を十分に行ったうえで供給を図る体制を構築する計画である。また、万が一薬品等の誤使用が発生した場合にも、適切な対処ができるよう、マニュアルや表示などの整備により対策することを検討する。

ジェンダー配慮の側面では、導入対象とする食品加工工場等において、多くが女性従業員であることを把握した。労働環境としては、現状次亜塩素酸ナトリウムなどを扱うことから肌荒れなどの症状がでやすい環境下であり、提案製品の導入にあたっては、一定濃度以上の次亜塩素酸水を扱う場合には手袋の着用を義務付けるなど、運用に関して十分な情報提供と対策を販売先に提示する等の対策を検討する。

３－７　ビジネス展開を通じて期待される開発効果

ベトナムにおいては、年間 1.5 回/人の食中毒が発生しており、この数値は先進国の 500-700 倍と言われている。このうち半数は微生物由来の食中毒とみられている。

提案製品のビジネス展開は、まず提案製品を購入し、運用することにより経済的メリットが十分に高い輸出産品を担う企業を対象に普及可能性を検討した。

南部のホーチミン市内の水産加工企業にヒアリングした結果、現在の市内企業の総消毒剤として次亜塩素酸ナトリウムの使用量は約 600 トン/年である。現在の使用量に基づいて、市内の水産加工企業における水道水、総次亜塩素酸ナトリウム、希塩酸の総使用量はそれぞれ約 60 万トン/年、300 トン/年、180 トン/年と試算した。本提案製品の導入により、消毒効果の向上のみならず、薬液のコストの削減も可能である。本提案製品の展開により、輸出に堪え得る品目の増加による経済効果や、国際市場におけるベトナム産品の信頼性向上を期待することができる。

ベトナム社会としても食品衛生に関する関心が日々高まりを見せる中、国内向け食品を扱う中小企業を含めたメーカーにおいても、国際基準での食品安全に取り組みはじめる時期が近いとみられる。ベトナム政府においても、食品安全に係る法規制や基準を強化し、改善を図る動きが活発化している状況は上述の通りである。

国内向け食品加工産業においても提案製品が普及することで、農水産物の衛生状態が改善され、ベトナム国内の食品由来の疾病減少や、健康増進に寄与できる可能性がある。

また、畜産については、猛威を振るうアフリカ豚コレラをはじめ、家畜伝染性疾病の予防が畜産業者の経営安定化に不可欠である中、畜舎の衛生管理改善が喫緊の課題となっている。こうした状況に際し、家畜の防疫への適用に実績のある提案製品の導入により、衛生環境の改善をもたらし、家畜伝染性疾病の被害を低減する効果を期待することができる。

３－８　日本国内地元経済・地域活性化への貢献

提案法人は、新型インフルエンザのパンデミック対策として、弱酸性次亜塩素酸水生成器の開発を開始し、以降明石市を皮切りとして三木市、姫路市、加古川市、相生市、赤穂市の各消防署への設備導入を通して、地元や地域の安全・安心に貢献している。

さらに、これらの消防署に対し、レドックスターを使用した衛生管理の講習等を行うなど、地域衛生環境向上にも寄与している。さらに、レドックスター生成器は、地元姫路の水産加工工場でも使われており、食品廃棄物等の最小化を通じ地域経済に貢献している。今後、本調査の実施を通じ、さらに以下の地元経済等への貢献を図る。

・事業実施による国内の雇用創出、新規開拓、新規開発

海外展開によって、提案製品の知名度が向上することが期待できるが、これは衛生管理の新規需要の喚起によるマーケット拡大や新規商品開発につながる可能性を展望できる。提案製品は衛生管理が必要なあらゆる場所に潜在的需要があることから、ベトナムでの実績を効果的に用い、日本国内の農水分野への適用も視野に入れることもできる。

例えば、地元瀬戸内海の水産資源であるタイやタコなど生鮮物は、鮮度維持の関係から一定の歩留まり（廃棄）が避けられないが、提案製品によりこれを低減できる可能性がある。

・事業実施による国内関連企業の売上増

事業実施によって、食品加工工程における本製品の利点や衛生管理の重要さが理解されれば、ベトナムにおける日本の衛生管理技術に対する評価が高まり、衛生管理分野での日本ブランドのさらなる地位向上を図ることができる。事業実施により、ベトナム市場へのこのような商品や技術の参入可能性を示せれば、衛生管理業界全体が活性化し、より多くの関連企業が競い合う契機となることが期待できる。

本調査では、上記 2 点の国内地元経済や地域活性化への貢献のため、JICA での活動報告等の機会を積極的に活用し、調査結果の発信によるプロモーションを図る。

第 4 章　ODA 事業との連携可能性

４－１　連携が想定される ODA 事業

連携が想定される ODA 事業として、2016 年 3 月～2019 年 3 月の期間で実施されている技術協力プロジェクト「ゲアン省農業振興開発計画策定支援プロジェクト」がある。

本プロジェクトでは、ゲアン省における農業振興マスタープラン及び行動計画が策定することとなっており、農畜産物の種子開発から栽培、加工、輸出に至るまでのサプライチェーンの構築を目指している。生産現場の状況に応じて、作物等の生産から消費までのサプライチェーンにかかる様々なパターンが提示されており、そのモデルの一つに提案製品の導入を位置づけることができる可能性がある。

また、2015 年 6 月から 2017 年 6 月にわたって実施された「マグロ漁業の近代化のための漁獲技術及び資機材の普及・実証事業」について、漁獲後の衛生管理への機材導入等の連携を図ることができるかもしれない。さらに、「協力準備調査（BOP ビジネス連携促進）」の「レンコン・バリューチェーン構築事業準備調査」について、カットレンコンなどの衛生管理への機材導入を検討することができる。

また、無償資金協力事業である「農業・水産食品の安全確保のための検査・農産食品品質コンサルティングセンター能力強化計画」において、食品検査体制の拡充および検査能力向上を目指す事業との連携も検討できる。具体的には、同センター内での検査に係る殺菌や消毒への利用があるほか、食品加工メーカーのニーズである衛生管理技術の一つとして、同センターから提案製品の推奨などを得られることを期待したい。

４－２　連携により期待される効果

農水産業における付加価値向上に際しては、栽培あるいは漁獲、保存、加工等幅広い分野の知見を統合した支援が必要であり、単体のプロジェクトだけでバリューチェーンのすべてをカバーすることが難しいケースが多い。本提案事業では、衛生管理に特化した技術の実装を目指すが、上記をはじめとするODA事業と連携することで、バリューチェーンにおいて重要ながら見逃しがちな衛生管理分野の補強となる効果を期待できる。

たとえば、水産関係の場合には、「マグロ漁業の近代化のための漁獲技術及び資機材の普及・実証事業」では、漁獲時に暴れやスレによって魚体の鮮度が劣化、損傷することを避けるため、漁法の近代化を図ることが目的とされているが、下流の加工や流通過程の衛生管理も徹底されなければ、十分な高付加価値化の効果にはつながらない恐れもある。そこで、提案製品を当該ODAプロジェクトの下流に位置づけることで、ベトナム国内の日本食チェーンにおける生食用のすしネタのように、国際的な基準による衛生管理が求められる市場に対しても、本技術との連携により参入が適うかもしれない。

また、無償資金協力事業である「農業・水産食品の安全確保のための検査・農産食品品質コンサルティングセンター能力強化計画」については、直接的な連携のみならず、同事業によりベトナムにおける検査体制が向上することで、食品加工メーカー各社の衛生課題がより明確になることを通じて、対策の選択肢として提案製品が位置付けられることが期待できる。

別添資料

企業機密情報につき非公表

参考資料 1 関連開発計画・政策

① 保健省決定 No. 46/2007/QD-BYT：食品中の生物学的および化学的汚染の最大レベルの規制

THE MINISTRY OF HEALTH

SOCIALIST REPUBLIC OF VIET NAM
Independence - Freedom - Happiness

No. 46/2007/QD-BYT

Hanoi, December 19, 2007

DECISION

ON PROMULGATION "REGULATION OF MAXIMUM LEVEL OF BIOLOGICAL AND CHEMICAL POLLUTION IN FOOD"

THE MINISTER OF HEALTH

Pursuant to the Decree No.49/2003/ND-CP of May 15, 2003 of the Government stipulating the functions, tasks, powers and organizational structure of the Ministry of Health;

Pursuant to the July 26, 2003 Ordinance No. 12/2003/PL-UBTVQH11 of The Standing Committee of National Assembly, on food hygiene and safety;

Pursuant to the Government's Decree No.163/2004/ND-CP of September 7, 2004 detailing the implementation of a number of articles of the Ordinance on food hygiene and safety;

At the proposal of the director of the Food Safety and Hygiene Department, the director of the Legal Department under the Ministry of Health,

DECIDES:

Article 1. To promulgate together with this Decision "the Regulation of maximum level of biological and chemical pollution in food".

Article 2. This Decision takes effect after 15 days from the day of its publication in the Official Gazette.

To Annul the April 04, 1998 Decision No. 867/1998/QD-BYT of the Minister of Health on promulgation "the List of Food Hygiene Standards". In case the similar national technical standards be promulgated, the maximum level of micro-organisms and residue of pollution substance in food be implemented according to that technical standard.

Article 3. Mr (Mrs): Chief of Office, Chief of Health Inspectorate, Directors of Departments: Science and Education, Legislation under the Ministry of Health, directors of the Food Safety and Hygiene Department, directors of provincial/municipal Health Services, heads of units under the Ministry of Health, and heads of health agencies of branches shall implement this Decision.

FOR THE MINISTER OF HEALTH
VICE MINISTER

Cao Minh Quang

REGULATION

MAXIMUM LEVEL OF BIOLOGICAL AND CHEMICAL POLLUTION IN FOOD

(Promulgated together with the December 19, 2007 Decision No. 46/2007/QD-BYT of the Health Minister)

TABLE OF CONTENTS

Part 1.

GENERAL PROVISIONS

1. Scope of application

This Regulation provides maximum level of biological and chemical pollution in food and list of processing-aid substances permitted to use in manufacturing, processing food.

2. Objects of application

This Regulation applies to organizes, individuals manufacturing, processing and doing business of food in Vietnam.

3. Abbreviations

- ADI (Acceptable Daily Intake)
- GAP (Good Agriculturing Practice)
- GMP (Good Manufacturing Practice)
- ML (Maximum Level)
- MRL (Maximum Residue Level)
- UHT (Ultra Heat Treated)
- MPN (Most Probable Number Method)
- B. cereus: Bacillus cereus
- Cl.botulinums: Clostridium botulinums
- Cl. perfringens: Clostridium perfringens
- E.coli: Escherichia coli
- P.aeruginosa: Pseudomonas aeruginosa
- S. aureus: Staphylococcus aureus
- TSVSVHK: Total aerobic plate counts
- V. Parahaemolyticus: Vibrio parahaemolyticus
- TSBTNM-M: Total of mould and yeast count
- dm: decimet
- kg: kilogram
- l: liter
- v/v: unit to count volume on volume
- mg: miligram
- ml: mililiter
- mm: milimeter
- mg: microgram

4. Interpretation of terms

In this Regulation, the following terms are construed as follows:

4.1. ***Veterinary medicine*** is substance or compound originating from animals, plants, micro-organisms , minerals, chemicals used in prophylaxis, diagnosis, treatment or rehabilitation, adjustment, improvement of functions of animal body, including pharmaceutical

products, chemicals, vaccines, hormones, some of other biological products and micro-organisms using in veterinary.

4.2. ***Plant protection drug*** is products originating from chemicals, plants, animals, micro-organisms and other products used to prevent and exterminate organisms that cause harm to plant resources.

4.3. ***Food processing-aid substance*** is substance used in processing of food material or food ingredient in order to complete the technology of food processing and handling.

4.4. ***Acceptable Daily Intake (ADI)*** is quantity of a kind of substance go into body daily without causing harmful effect to human health (unit: mg/kg weight).

4.5. ***Maximum residue level (MRL) of veterinary medicine*** is maximum level of a kind of veterinary medicine after using, remaining in food and counted by microgram of veterinary medicine per one kilogram of solid food or one liter of liquid food.

4.6. ***Maximum residue level (MRL) of plant protection drug*** is maximum quantity of plant protection drug accepted to exist in agricultural product, food without causing harm to human. MRL is shown by milligram of plant protection drug per one kilogram of food.

4.7. ***Maximum level (ML)*** is limit of a specific polluted or natural poisonous substance permitted to be in food counting by milligram of polluted or natural poisonous substance per one kilogram of food (mg/kg).

4.8. ***Non-heat treated processed meat*** is product to be processed from meat under technology process without going through heat treament stage that the temperature of the product center is under 70^{o}C and not neccesary for heating before eating.

4.9. ***Heat-treated processed meat*** is product processed from meat under technology process with heat treament stage which ensure that the temperature of the product center is over 70^{o}C and not neccesary for heating before eating.

4.10. ***Functional food*** is food used to assist function of parts in human body, with nutrition effect, make body comfortable, reinforce resistance and reduce risk of disease.

4.11. ***Tool to contain food*** is tool used with the purposes to prepare, cook, serve meal and preserve food or drinks.

4.12. ***Tool to cook*** is tool used to heat in processing food and drinks by method of normal heating or microwave.

4.13. ***Tool made of pottery*** is tool used to contain food include tools made of porcelain, terra-cotta.

4.14. ***Tool for containing with shallow and flat bowel*** is tool made of pottery or glass with the depth inside not more than 25mm be measured from the deepest dot to horizontal surface go pass overflow point.

4.15. ***Tool for containing made of pottery with deep bowel*** is tool made of pottery with the depth inside more than 25mm be measured from the deepest dot to horizontal surface go pass overflow point. Tool for containing with deep bowel is divided into groups:

- Small size: have capacity less than 1.1 liter;

- Big size: have capacity from 1.1 liter to 3 liter;

- Using for preserving: have capacitymore than 3 liter;

- Tumbler, bowl: tool made of pottery,has small size with deep bowel (have capacity about 240 ml) usually used for containing drinks such as coffee, tea at high temperature.

4.16. ***Tool for containing made of glass with deep bowel*** is tool made of glass with the depth inside more than 25mm be measured from the deepest dot to horizontal surface go pass overflow point. Tool for containing with deep bowel is divided into groups:

- Small size: have capacity less than 600 ml;

- Big size: have capacity from 600 ml to 3 liter;

- Using for preserving: have capacity more than 3 liter.

5. Inspection, supplement

Yearly, The Ministry of Health organizes the consideration of maximum level of micro-organisms and polluted substance residue in food on the basis of ensuring consumer's health, conforming with regulation of nations in the world and Codex.

Part 6.

LIMIT OF MICRO-ORGANISMS IN FOOD

LIMIT OF MICRO-ORGANISM IN FOOD MUST NOT EXCEED THE FOLLOWING LIMITS:

6.1. Limit of micro-organism in milk and milk products

No.	PRODUCT	TYPE OF MICRO-ORGANISMS	LIMIT OF MICROORGANISMS (In 1 g or 1 ml of the product) (*)
1	**Liquid milk and milk beverages, including liquid milk with flavoring or other food additives**		
1.1	Pasteurized milk	TSVSVHK (a)	5x105
		Coliforms	Negative
		E. coli	Negative (or < 3 MPN)
		S. aureus	Negative

		Listeria monocytogenes	Negative
		Salmonella.spp	Negative
1.2	Milk sterilized through UHT process or other high-temperature sterilization process	TSVSVHK (a)	102
		Coliforms	Negative
		E. coli	Negative (or < 3 MPN)
		S.aureus	Negative
		Listeria monocytogenes	Negative
		Salmonella.spp	Negative
2	**Fermented milk, including liquid and condensed milk**		
		Coliforms	10
		E. coli	Negative (or < 3 MPN)
		S.aureus	Negative
		Listeria monocytogenes	Negative
		Salmonella.spp	Negative
		Yeast	102
		Molds and fungi	102
3	**Milk powder**		
		TSVSVHK	$5x10^5$
		Coliforms	10
		B.cereus	102
		E.coli	Negative (or < 3 MPN)
		S.aureus	10
		Listeria monocytogenes	Negative
		Salmonella.spp	Negative
4	**Condensed milk**		

		Listeria monocytogenes	Negative
		Salmonella.spp	Negative
5	**Cream**		
5.1	Pasteurized cream	*Coliforms*	10
		E. coli	Negative (or < 3 MPN)
		S. aureus	Negative
		Listeria monocytogenes	Negative
		Salmonella.spp	Negative
5.2	UHT sterilized cream	TSVSVHK (b)	102
		Coliforms	Negative
		E.coli	Negative (or < 3 MPN)
		S. aureus	Negative
		Listeria monocytogenes	Negative
		Salmonella.spp	Negative
6	**Cheese**		
		Coliforms	104
		E. coli	102
		S. aureus	102
		Listeria monocytogenes	Negative
		Salmonella.spp	Negative

(a) TSVSVHK at 21^{o}C

(b) TSVSVHK at 30^{o}C

(*) Calculated in 25 g or 25 ml for *Salmonella.spp* and *Listeria monocytogenes*

6.2. Limit of micro-organism in meat and meat products

No.	PRODUCT	TYPE OF MICROORGANISM	LIMIT OF MICROORGANISMS (In 1 g or 1 ml of the product) (*)

1. Fresh and frozen meat			
1.1	Fresh meat, frozen meat, in whole quantity or cut	TSVSVHK	105
		Coliforms	102
		E. coli	102
		S. aureus	102
		Cl.perfringens	102
		Salmonella	Negative
1.2	Fresh meat, comminuted frozen meat	TSVSVHK	106
		Coliforms	102
		E. coli	102
		S. aureus	102
		Cl.perfringens	102
		Salmonella	Negative
2. Meat and processed meat, not heat-treated (ready to eat)			
2.1	Salted and smoked meat and meat products	TSVSVHK	103
		Coliforms	50
		E. coli	10
		S. aureus	102
		Cl.perfringens	102
		Salmonella	Negative
		Listeria monocytogenes	Negative
2.2	Fermented meat and meat products	*Coliforms*	50
		E. coli	10
		S. aureus	102
		Cl.perfringens	102
		Salmonella	Negative
		Listeria monocytogenes	Negative
3. Meat and meat products, heat-treated			

3.1	Packed meat and meat products	TSVSVHK	104
		Coliforms	50
		E. coli	Negative (or < 3 MPN)
		S. aureus	102
		Cl.perfringens	10
		Cl. botuliniums	Negative
		Salmonella	Negative
		Listeria monocytogenes	Negative
3.2	Unpacked meat and meat products	TSVSVHK	105
		Coliforms	50
		E. coli	Negative (or < 3 MPN)
		S. aureus	102
		Cl.perfringens	102
		Salmonella	Negative
		Listeria monocytogenes	Negative
3.3	Dried meat	TSVSVHK	105
		Coliforms	50
		E. coli	Negative (or < 3 MPN)
		S. aureus	102
		Cl.perfringens	102
		Salmonella	Negative
		Listeria monocytogenes	Negative
3.4	Canned meat	*E. coli*	Negative (or < 3 MPN)
		S. aureus	Negative
		Cl.perfringens	Negative
		Cl.botuliniums	Negative
		Salmonella	Negative

(*) Calculated in 25 g or 25 ml for *Salmonella* and *Listeria monocytogenes*

6.3. Limit of micro-organism in fish and aquatic animals and plants

No.	PRODUCT	TYPE OF MICROORGANISM	LIMIT OF MICROORGANISMS (In 1 g or 1 ml of the product) (*)
1	Fresh fish and aquatic products: frozen fish, fresh fish, molluscs, products thereof *(require heat treatment before use)*	TSVSVHK	106
		E.coli	102
		S.aureus	102
		Cl.perfringens	102
		Salmonella	Negative
		V. parahaemolyticus	102
2	Products of fish and aquatic animals: lobster, streamed or smoked fish, grilled chopped fish, grilled chopped cuttlefish, boiled or streamed crustaceans, molluscs *(ready to eat without heat treatment)*	TSVSVHK	105
		Coliforms	10
		E.coli	3
		S.aureus	10
		Cl.perfringens	10
		Salmonella	Negative
		V. parahaemolyticus	10
		TSBTNM-M	10
3	Prepared dried aquatic products *(require heat treatment before use)*	TSVSVHK	106
		Coliforms	102
		E.coli	10
		S.aureus	102
		Cl.perfringens	20
		Salmonella	Negative
		V. parahaemolyticus	102

(*) Calculated in 25 g or 25 ml for *Salmonella*

6.4. Limit of micro-organism in eggs and egg products

No.	PRODUCT	TYPE OF MICROORGANISM	LIMIT OF MICROORGANISMS (In 1 g or 1 ml of the product) (*)

1	Fresh eggs, fresh or frozen liquid eggs	TSVSVHK	105
		Coliforms	102
		E.coli	3
		S.aureus	10
		Salmonella	Negative
2	Egg products (pasteurized)	TSVSVHK	103
		Coliforms	10
		E.coli	Negative
		S.aureus	3
		Salmonella	Negative

(*) Calculated in 25 g or 25 ml for *Salmonella*

6.5. Limit of micro-organism in cereal and cereal products

No.	PRODUCT	TYPE OF MICROORGANISM	LIMIT OF MICROORGANISMS (In 1 g or 1 ml of the product) (*)
1	Cereal products, potatoes, beans: flour, transparent vermicelli, noodle *(require heat treatment before use)*	TSVSVHK	106
		Coliforms	103
		E.coli	102
		S.aureus	102
		Cl. perfringens	102
		B.cereus	102
		TSBTNM-M	103
2	Cereal products, potatoes, beans: bakers' ware, flour *(ready to eat without heat treatment)*	TSVSVHK	104
		Coliforms	10
		E.coli	3
		S.aureus	10
		Cl. perfringens	10
		B.cereus	10
		TSBTNM-M	102

6.6. Limit of micro-organism in vegetables and fruits and products thereof

No.	PRODUCT	TYPE OF MICROORGANISM	LIMIT OF MICROORGANISMS (In 1 g or 1 ml of the product) (*)
1	Fresh or frozen vegetables and fruits	TSVSVHK	Limited by G.A.P
		Coliforms	10
		E.coli	Limited by G.A.P
		S.aureus	Limited by G.A.P
		Cl. perfringens	Limited by G.A.P
		Salmonalla	Negative
2	Salted and dried vegetables and fruits	TSVSVHK	104
		Coliforms	10
		E.coli	Negative
		Cl. perfringens	10
		B.cereus	102
		TSBTNM-M	102

(*) Calculated in 25 g or 25 ml for Salmonella

6.7. Limit of micro-organism in mineral water and bottled beverages

No.	PRODUCT	TYPE OF MICROORGANISM	LIMIT OF MICROORGANISMS (In 1 g or 1 ml of the product) (**)
1	Alcoholic beverages	TSVSVHK	10
		E.coli	Negative
		S.aureus	Negative
		Streptococci faecal	Negative
		P.aeruginosa	Negative
		Cl. Perfringens	Negative
2	Non-alcoholic beverages	TSVSVHK	102
		Coliforms	10
		E.coli	Negative
		S.aureus	Negative

		Streptococci faecal	Negative
		P.aeruginosa	Negative
		TSBTNM-M	10
		Cl. Perfringens	Negative
3	Bottled mineral water	TSVSVHK	Limited by GMP
		Coliforms	Negative
		Streptococci faecal	Negative
		P.aeruginosa	Negative
		Cl. Perfringens	Negative

(**) Calculated in 250 ml for bottled mineral water

6.8. Limit of micro-organism in flavors and sauces

No.	PRODUCT	TYPE OF MICROORGANISM	LIMIT OF MICROORGANISMS (In 1 g or 1 ml of the product) (*)
1	Flavors	TSVSVHK	104
		Coliforms	102
		E.coli	3
		S.aureus	102
		Salmonella	Negative
		TSBTNM-M	102
2	Sauces derived from animals	TSVSVHK	104
		Coliforms	102
		E.coli	Negative
		S.aureus	3
		Cl.perjringens	10
		Salmonella	Negative
		V.parahaemolyticus	10
3	Sauces derived from plants	TSVSVHK	104
		Coliforms	102

		E.coli	Negative
		S.aureus	3
		Cl. Perfringens	10
		Salmonella	Negative
		TSBTNM-M	10

(*) Calculated in 25 g or 25 ml for Salmonella

6.9. Limit of micro-organism in special food

No.	PRODUCT	TYPE OF MICROORGANISM	LIMIT OF MICROORGANISMS (In 1 g or 1 ml of the product) (*)
1	Dried food and nutritious food for children, special subtitute of food (require heat treatment before use)	TSVSVHK	105
		Coliforms	102
		E.coli	10
		S.aureus	102
		Cl. Perfringens	10
		Salmonella	Negative
		B.cereus	102
2	Dried food and nutritious for for children, special substitute for food *(ready to use without heat treatment)*	TSVSVHK	104
		Coliforms	10
		E.coli	Negative
		S.aureus	3
		Cl. Perfringens	10
		Salmonella	Negative
		B.cereus	10

(*) Calculated in 25 g for *Salmonella*

6.10. Limit of micro-organism in ice cream and ice

No.	PRODUCT	TYPE OF MICROORGANISM	LIMIT OF MICROORGANISMS (In 1 g or 1 ml of the product) (*)
	Ice cream, ice	TSVSVHK	5.104
		Coliforms	102

		E.coli	Negative
		S.aureus	10
		Salmonella	Negative
		Cl. Perfringens	10

(*) Calculated in 25 g or 25 ml for Salmonella

6.11. Limit of micro-organism in canned food

No.	PRODUCT	TYPE OF MICROORGANISM	LIMIT OF MICROORGANISMS (In 1 g or 1 ml of the product)
	Products derived from meat, canned fish, canned vegetables	*E.coli*	Negative
		S.aureus	Negative
		Cl. Perfringens	Negative
		Cl. botuliniums	Negative
		TSBTNM-M	Negative

6.12. Limit of micro-organism in fats and oils

No.	PRODUCT	TYPE OF MICROORGANISM	LIMIT OF MICROORGANISMS (In 1 g or 1 ml of the product) (*)
	Fats and oils	TSVSVHK	103
		Coliforms	10
		E.coli	3
		S.aureus	Negative
		Salmonella	Negative
		TSBTNM-M	Negative

(*) Calculated in 25 g or 25 ml for *Salmonella*

Part 7

LIST OF SUPPORTING AGENTS PERMITTED TO USED IN FOOD PRODUCTION

Vietnamese names in accordance with Vietnam's Chemical Dictionary

Enlish name and use areas and MRL in accordance with Codex.

No.	**Vietnamese name**	**English name**	**Use areas**	**MRL (mg/kg)**

	1. Các tác nhân chống tạo bọt	**1. Antifoam agents**		
1.	Sản phẩm ankylen oxit	Alkylene oxide adduct	Juice production	
2.	Đimetylpolysiloxan	Dimethylpolysiloxane	Beer, oils and fats	
3.	Copolyme etilenoxit - propilen oxit	Ethylene oxide - propylene oxide copolymers	Juice production	
4.	Metyl este của axit béo	Fatty acid methyl ester		
5.	Este poliankilen glicol của axit béo (1-5 phân tử etylen oxit hay propylen oxit)	Fatty acid polyakylene glycol ester (1-5 moles ethylene oxide or propylene oxide)		
6.	Ete glycol - Ancol béo	Fatty alcohol-glycol ether HO-CH2-CH2-OR R=CnH2n+1, n=8-30	Juice production	
7.	Ancol béo, CnH2n+1OH n=8-30	Fatty alcohols (C8-C30)		
8.	Dầu dừa đó hydrogen hóa	Hydrogenated coconut oil	Confectionery production	5 - 15
9.	Este acyl béo ưa nước gắn thờm chất mang trung tính	Hydrophillic fatty acyl ester, linked to a neutral carrier	Juice production	
10.	Dung dịch Alfa metyl glycozit	Alpha – methyl glycoside water	Juice production	
11.	Hỗn hợp các dẫn xuất acyl béo tổng hợp và tự nhiên với các chất nhũ hóa	Mixture of naturally occurring and synthetic fatty acyl derivatives, with added emulgators	Juice production	
12.	Sản phẩm không sinh ion ankylen oxit với chất nhũ hóa	Non-ionogenic alkylene oxide adduct with emulgator	Juice production	
13.	Các oxo-ancol C9-C30	Oxoalcohols C9-C30		
14.	Ancol polyetoxyl hóa, biến tính	Polyethoxylated alcohols, modified	Juice production	
15.	Copolyme polyglycol	Polyglycol copolymer	Juice production	
16.	Este polyoxyetylen của axit béo C8-C30	Polyoxyethylene esters of C8-C30 fatty acids		

17.	Este polyoxyetylen của oxoancol C9-C30	Polyoxyethylene esters of C9-C30 oxoalcohols		
18.	Metyl glycozit este dầu dừa	Methylglycoside coconut oil ester	Juice production	
19.	Hỗn hợp este polyoxyetylen và polyoxypropylen của các axit béo C8-C30	Mixtures of polyoxyethylene and polyoxypropylene esters of C8-C30 fatty acids		
20.	Ancol bậc cao biến tính.	Modified higher alcohol	Juice production	
21.	Polyme khối polypropylen – polyetylen	Polypropylene- proethylene block polymer	Juice production	
22.	Este của axit béo thực vật	Vegetable fatty acid esters	Juice production	
23.	Axyl béo thực vật (ưa nước)	Vegetable fatty acyl (hydrophillic)	Juice production	
	2. Các chất xúc tác	**2. Catalysts**		
24.	Nhôm	Alluminium	Hydrogenated food oils	
25.	Crụm	Chromium	Hydrogenated food oils	< 0.1
26.	Đồng	Copper	Hydrogenated food oils	< 0.1
27.	Đồng cromat	Copper chromate	Hydrogenated food oils	
28.	Đồng cromit	Copper chromite		
29.	Mangan	Manganese	Hydrogenated food oils	< 0.4
30.	Molipđen	Molybdenum	Hydrogenated food oils	< 0.1
31.	Niken	Nickel	Sugar; alcohols	<1
			Manufacture of harden oil	< 0.8
			Hydrogenated food oils	0.2 - 1.0
32.	Paladi	Palladium	Hydrogenated food oils	< 0.1
33.	Platin	Platinum	Hydrogenated food oils	<0.1
34.	Kali kim loại	Potassium metal	Esterified food oils	<1
35.	Kali metylat (metoxit)	Potassium methylate (methoxide)	Esterified food oils	<1

36.	Kali etylat (etoxit)	Potassium ethylat (ethoxide)	Esterified food oils	<1
37.	Bạc	Silver	Hydrogenated food oils	<0.1
38.	Natri amid	Sodium amide	Esterified food oils	<1
39.	Natri etylat	Sodium ethylate	Esterified food oils	<1
40.	Natri metylat (metoxit)	Sodium methylate (methoxide)	Esterified food oils	<1
41.	Axit triflometan sunfonic (CF3SO3H)	Trifluoromethane sulfonic acid	Substitutes for cocoa butter	<0.01
42.	Zirconi	Zirconium		
	3. Các tác nhân làm trong/chất trợ lọc	**3. Clarifying agents/ filtration aids**		
43.	Đất sét hấp phụ (tẩy màu, đất tự nhiên hay hoạt tính)	Absorbent clays (bleaching, natural, or activated earths)	Starch hydrolysis; sugars, vegetable oils	
44.	Anbumin	Albumin		
45.	Asbestos	Asbestos		
46.	Bentonit	Bentonite	Starch hydrolysis	
47.	Nhựa đivinylbenzen clometyl hóa và amin hóa	Chloromethylated aminated styrene – divinylbenzene resin.	Production of starch	<1
48.	Điatomit	Diatomaceous earth	Juice production Starch hydrolysis	
49.	Copolyme đivinylbenzen- etyl vinylbenzen	Divinylbenzen – ethylvinylbenzen copolymer	Aqueous foods (excluding carbonated beverages)	0.00002 extract from copolymer
50.	Đất sét hoạt tính	Fulleris earth	Starch hydrolysis	
51.	Nhựa trao đổi ion	Ion exchange resins (see ion exchange resins)		
52.	Isinglass	Ising lass		
53.	Cao lanh	Kaolin		
54.	Magiờ axetat	Magnesium acetate		
55.	Perlite	Perlite	Starch hydrolysis	
56.	Axit polymaleic và natri	Polymaleic acid and sodium	Sugar processing	<5

	polymaleat	Polymaleate		
57.	Tananh	Tannin		
58.	Than hoạt tính, than không có hoạt tính	Vegetable carbon (activated, unactivated)	Starch hydrolysis	
	4. Tác nhân làm lạnh và làm mát	**4. Category contact freezing and cooling agents**		
59.	Điclofluorometan	Dichlorofluoromethane	Frozen food	100
	5.Tác nhân làm khô/ tác nhân chống đóng bánh	**5. Desiccating agent/anticaking agents**		
60.	Nhôm stearat	Aluminum stearate		
61.	Canxi stearat	Calcium stearate		
62.	Magiê stearat	Magnesium stearate		
63.	Octađecylammoni axetat (trong amoni clorua (C18H37NH3OOCCH3)	Octadecylammonium acetate (in ammmonium chloride)		
64.	Kali nhôm silicat	Potassium aluminum silicate		
65.	Natri canxi silicoaluminat	Sodium calcium silicoaluminate		
	6.Chất tẩy rửa (tác nhân làm ẩm)	**6. Detergents (wetting agents)**		
66.	Đioctyl natri sunfosucxinat	Dioctyl sodium sulfosuccinate	Fruit juice	<10
67.	Các hợp chất amoni bậc 4	Quaternary ammonium compounds		
68.	Natri lauryl sunfat	Sodium lauryl sulphate	Food fats and oils	<1
69.	Natri xylen sunfonat	Sodium xylene sulphonate	Food fats and oils	<1
	7. Các tác nhân cố định enzim và chất mang	**7. Enzyme immobilization agents and supports**		
70.	Polyetylenimin	Polyethylenimine		
71.	Glutarađehit	Glutaraldehyde		
72.	Đietylaminoetyl xenluloza	Diethylaminoethyl cellulose		
	8. Chế phẩm enzim (kể cả các enzim đã được cố	**8.Enzyme preparations** (including immobilized		

	định trên chất mang) *Chế phẩm enzim có nguồn gốc từ động vật*	enzymes) *Animal – derived preparations*		
73.	Catalaza (gan bò hay ngựa)	Catalase (bovine or horse liver)		
74.	Chymosin (bê, dê non, cừu non)	Chymosin (calf, kid, or lamb abomasum)		
75.	Chymosin A từ *Eschorichia coli* K-12 chứa gene prochymosin A của bê	Chymosin A from *Eschorichia coli* K – 12 containing calf prochymosin A gene)	Milk clotting in cheese and other milk-derived products	
76.	Chymosin B	Chymosin B produced from		
		Aspergillus niger var awamori containing calf prochymosin B gene		
77.	Lipaza (dạ dày bò) (Tuyến nước bọt hay thực quản của bê, dê non, cừu non) (heo hay tụy bò)	Lipase (bovine stomach) (salivary glands or forestomach of calf, kid, or lamb) (hog or bovine pancreas)		
78.	Lysozim (lòng trắng trứng)	Lysozyme (egg whites)	Butter, cheese	
79.	Pepsin, avian (của chim, gia cầm)	Pepsin, avian (proventicum of poultry)		
80.	Photpholipaza (tụy)	Phospholipase (pancreas)	Baking	
81.	Rennet (dạ dày bò, dê hay cừu)	Rennet (bovine, calf, goat, kid, or sheep, lamb stomach)		
82.	Typsin (Tụy heo hay bò) *Chế phẩm enzim có nguồn gốc từ thực vật*	Typsin (porcine or bovine pancreas) *Plant – derived preparations*		
83.	Chymopapain (từ quả đu đủ)	Chymopapain (*Carica papaya*)		
84.	Ficin (từ cây sung)	Ficin (*Ficus spp*)		
85.	Liposydaza (từ đậu nành)	Liposydase (soya)	Baking	
86.	Men rượu (*Saccharomyces cerevisia)*	Alcohol dehydrogenase (*Saccharomyces cerevisia*)		
87.	Alpha- galactosidaza	Alpha galactosidase		

88.	Arabinofuranosidaza	Arabinofuranosidease		
89.	Beta-glucanaza	Beta glucanase		
90.	Cellobiaza	Cellobiase		
91.	Xenlulaza	Cellulase	Vegetable processing, fruit juice processing, baking, beer production, starch production, coffee/tea/spices extraction	
92.	Dextranaza	Dextranase		
93.	Endo-beta glucanaza	Endo-beta glucanase	Beer	
94.	Esteraza	Esterase		
95.	Exo-alpha glucozidaza (được cố định trên chất mang) (cùng nguồn như trên) không nhiều hơn 10mg/kg glutaraldehyd	Exo-alpha glucosidase (immobilized) (same sources as above) no more than 10mg/kg glutaraldehyde		
96.	Glucoamylaza hay	Glucoamylase or	Starch hydrolysis	
	amyloglucosidaza	amyloglucosidase	Gluco syrup production	
97.	Glucose isomeraza	Glucose isomerase	Isomerized glucose syrups	
98.	Hemixenlulaza	Hemicellulase	Vegetable processing, fruit juice processing, baking, beer production, starch production, coffee/tea/spices extraction	
99.	Inulinaza	Inulinase		
100.	Invertaza	Invertase		
101.	Isoamylaza	Isoamylase		
102.	Lactaza	Lactase	Production of milk products	
103.	Lactoperoxidaza	Lactoperoxidase		

104.	Decacboxylaza đối với axit malic	Malic acid decarboxylase		
105.	Maltaza hay anphaglucosidaza	Maltase or alphaglucosidase		
106.	Melibiaza (anpha-galactosidaza)	Melibiase (alpha- galatosidase)		
107.	Enzim khử nitrat	Nitrate reductase		
108.	Pectin esteraza	Pectin esterase		
109.	Pectinlyaza	Pectinlyase		
110.	Polygalacturonaza	Polygalacturonase		
111.	Proteaza	Protease	Cheese cake production, Starch hydrolysis, production of glucose syrups and maltose syrups	
112.	Pullulanaza	Pullulanase	Starch hydrolysis	
113.	Serin proteinaza	Serine proteinase		
114.	Tannaza	Tannase		
115.	Xylanaza	Xylanase	Baking, cereal processing, brewing, starch processing, production of juice and wine	
116.	Beta-xylosidaza	Beta-xylosidase	Baking	
	9.Các tác nhân keo tụ	**9. Flocculating agents**		
117.	Nhựa acrylat - acrylamit	Acrylate - acrylamide resin	Production of sugar	10 in sugar solution
118.	Chitin/chitosan	Chitin/chitosan		
119.	Phức của muối nhôm hũa tan và axit photphoric	Complexes of soluble aluminum salt and phosphoric acid	Production of drinking water	
120.	Copolime đimetylamin-epiclohidrin	Dimethylamine - epichlorohydrin copolymer	Sugar processing	<5

121.	Đất sét chuỗi vải (dạng Canxi của Natri montmmorillonit)	Fuller's earth (calcium analogue of sodium montmorillonite)		
122.	Huyết thanh dạng khô và dạng bột	Dried and powdered blood plasma		
123.	Nhựa acrylamit biến tính	Modified acrylamide resin	Sugar, boiler water	
124.	Axit poliacrylic	Polyacrylic acid	Sugar	
125.	Poliacrylamit	Polyacrylamide	Sugar (sugar beet)	
126.	Natri poliacrylat	Sodium polyacrylate	Sugar (sugar beet)	
127.	Trinatri điphotphat	Trisodium diphosphate		
128.	Trinatri orthophotphat	Trisodium orthophosphate		
	10. Nhựa trao đổi ion, màng và rây phân tử	**10. Ion exchange resins, membranes and molecular sieves**		
129.	Copolyme của metyl acrylat và đivinylbenzen bị thủy phân hoàn toàn	Completely hydrolyzed copolymers of methyl acrylate and divinylbenzene and acrylonitrile	Carrier serving starch hydrolysis	<1 (calculated at toal organic carbon)
130.	Đietylentriamin, trietylentetramin, tetraetylenpantamin được tạo mạng với epiclohiđrin	Diethylenetriamine, triethylenetetramine, tetraethylenepentamine cross - linked with epichlorohydrin		
131.	Copolyme của axit metacrylic và đivinylbenze	Metacrylic acid- divinylbenzene copolymer		
132.	Copolyme của axit metacrylic và đivinylbenzen với nhóm hoạt động RCOO	Methacrylic acid- divinylbenzene copolymer with RCOO active groups		
133.	Polystyren và đivinylbenzen cầu hóa bằng các nhóm trimetylammoni	Polystyrene- divinylbenzene reticulum with trimethylammonium groups	Sugar, distilled liquors	Migrants from resin <1
	11. Chất bôi trơn, các tác nhân loại bỏ và chống kẹt cứng, trợ khuụn	**11. Lubricants, release and anti - stick agents, moulding aids**		

134.	Đimetylpolisiloxan (CH3-[Si(CH3)2] – CH3	Dimethylpolysiloxane		
	12. Tác nhân kiểm soát vi sinh vật	**12. Micro-oganism control agents**		
135.	Đioxit clo Cl02	Chlorine dioxide	Flours	
136.	Hipoclorit	Hypochlorite	Food oils	
137.	Iodophors	Iodophors	Food oils	
138.	Axit peraxetic	Peracetic acid		
139.	Hợp chất amoni bậc 4	Quaternary ammonium compounds	Food oils	
140.	Muối của axit sunfurơ	Salt of sulfurous acid	Starch hydrolysis of milled corn	< 100
141.	Hệ enzim lactoperoxiđaza (latoperoxiđaza, gluco oxiđaza, muối thioxianat)	Lactoperoxidase system (lactoperoxidase, glucose oxidase, thiocyanate salt)		
	13. Tác nhân đẩy tơi và các khí bao gói	**13. Propellant and packaging gases**		
142.	Không khí	Air		
143.	Acgon	Argon		
144.	Cacbon đioxit	Carbon dioxide		
145.	Clopentafluoroetan	Chloropentafluoroethane		
146.	Điclođifluorometan	Dichlorodifluoromthan		
147.	Heli	Helium		
148.	Hiđro	Hydrogen		
149.	Nitơ oxit	Nitrous oxide		
150.	Octa fluoroxyclobutan	Octafluorocyclobutane		
151.	Propan	Propane		
152.	Triclorofluorometan	Trichlorofluoromethane		
	14. Các dung môi, quá trình chiết và chế biến	**14. Solvents, extraction and processing**		

153.	Axeton (đimetylxeton)	Acetone (dimethyl ketone)	Flavourings and colors of food oils	< 30, 2 & 0.1
154.	Amyl axetat	Amyl acetate	Flavourings, colors	
155.	Benzyl ancol	Benzyl alcohol	Flavourings and colors of fatty acids	
156.	Butan	Butane	Flavourings and food oils	<1.01
157.	Butan-1,3-điol	Butane-1,3-diol	Flavourings	
158.	Ancol 1- Butylic	Butan – 1-ol	Fatty acid, flavourings, colors	<1000
159.	Ancol 2- Butylic	Butanol-2-ol	Flavourings	1
160.	Butyl axetat	Butyl acetate		
161.	Xiclohexan	Cyclohexane	Flavourings and food oils	<1
162.	Đibutyl ete	Dibutyl ether	Flavourings	<2
163.	1,2- đicloetan (điclo etan)	1,2- Dichlororethane (Dichloroethane)	Decaffeination of products	<5
164.	Điclofluorometan	Dichlorodifluoromethane	Flavourings	<1
165.	Đietyl xitrat	Diethyl citrate	Flavourings, colors	
166.	Đietyl ete	Diethyl ether	Flavourings, colors	<2
167.	Etyl axetat	Ethyl acetate		
168.	Ancol n-octyl	n-octyl alcohol	Citric acid	
169.	Pentan	Pentane	Flavourings and food oils	<1
170.	Ete dầu hỏa	Petroleum ether (light petroleum)	Flavourings and food oils	<1
171.	Propan 1,2 – điol	Propane – 1,2 – diol	Fatty acid, flavourings, colors	
172.	Ancol 1- Propiolic	Propane- 1-ol	Fatty acid, flavourings, colors	
173.	Ancol tectiary butyl	Tertiary butyl alcohol		

174.	1,1,2 – tricloetylen	1,1,2- Trichloroethylene	Flavourings and food oils	<2
175.	Triđođexylamin	Tridodecylamine	Citric acid	
176.	Toluen	Toluene	Flavourings	<1
177.	Etyl metyl xeton (Butanon)	Ethylmethylketone (butanone)	Fatty acid, flavourings, decaffeination of coffee, tea	<2
178.	Glyxerin tributyrat	Glycerol tributyrate	Flavourings, colors	
179.	Hexan	Hexane	Flavourings and food oils	<0.1
180.	Isobutan	Isobutane	Flavourings	<1
181.	Hyđrocacbon từ isoparafinic dầu mỏ	Isoparaffinic petroleum hydrocarbons	Citric acid	
182.	Isopropyl myristat	Isopropyl myristate	Flavourings, colors	
183.	Clorua metylen (điclometan)	Methylene chloride (dichloromethane)	Food oils	<0.02
184.	Metyl propanol –1	Methyl propanol –1	Flavourings	1
	15. Tác nhân tẩy rửa và búc vỏ	**15.Washing and peeling agents**		
185.	Amoni orthophosphat $(NH_4)_3PO_4$	Ammonium orthophosphate	Vegetables and fruits	
186.	Điamoni orthophosphat (5% trong dung dịch nước)	Diammonium orthophosphate, (5% aquaous solution)	Canned vegetables and fruits	
187.	Đitiocacbamat	Dithiocarbamate	Sugar beet	
188.	Etylen điclorid (đicloetan)	Ethylene dichloride	Sugar beet	0.00001 in sugar beet and 0 in sugar
189.	Ete etylen glicol monobutyl	Ethylene glycol monobutyl ether	Sugar beet	0.00003 in sugar beet and 0 in sugar

190.	Hiđro peroxit (H2O2)	Hydrogen peroxide	Sugar beet	
191.	Monoetanolamin	Monoethanolamine	Sugar beet	0.0001 in sugar beet and 0 in sugar
192.	Kali bromua	Potassium bromide	Vegetables and fruits	
193.	Natri hipoclorit	Sodium hypochlorite	Vegetables and fruits	
194.	Natri tripoliphosphat	Sodium tripolyphosphate		
195.	Tetra kali pyrophosphat	Tetrapotassium pyrophosphate	Sugar beet	0.00002 in sugar beet and 0 in sugar
196.	Tetra natri etilenđiamintetra axetat	Tetrasodium ethylenediaminetetraacetate	Sugar beet	0.000003 in sugar beet and 0 in sugar
197.	Trietanolamin	Triethanolamine	Sugar beet	0.00005 in sugar beet and 0 in sugar
	16.Các chất hỗ trợ chế biến khác	**16. Other processing aids**		
198.	Nhôm ôxit	Aluminum oxide		
199.	Canxi tactrat	Calcium tartrate		
200.	Axit erythorbic	Erythorbic acid		
201.	Etyl parahyđroxybenzoat	Ethyl parahydroxybenzoate		
202.	Axit giberelic	Gibberellic acid		
203.	Magie tactrat	Magnesium tartrate		
204.	Kali giberelat	Potassium gibberellate		
205.	Natri	Sodium		
206.	Natri silicat	Sodium silicates		
	PHỤ LỤC	**APPENDIX**		

	Danh mục các hợp chất hỗ trợ chế biến được dùng làm phụ gia (Bao gồm tất cả các chất có thể dùng cho các chức năng khác)	**Codex inventory of all compounds as processing aids** (Includes substances that may serve other functions)		
	1.Tác nhân chống tạo bọt	**1.Antifoam agents**		
207.	Hiđroxianisol butyl hóa (chất chống oxi hóa trong thiết bị loại bọt)	Butylated hydroxyanisole (as antioxidant in defoamers)		
208.	Hyđroxytoluen butyl hóa (chất chống oxi hóa trong thiết bị loại bọt)	Butylated hydroxytoluene (as antioxidant in defoamers)		
209.	Axit béo	Fatty acids		
210.	Lecitin hyđroxyl hóa	Hydroxylated lecithin		
211.	Magarin	Margarine		
212.	Mono – và điglycerit của các axit béo	Mono – and diglycerides of fatty acids		
213.	Axit oleic từ các axit béo của dầu nặng	Oleic acid from tall oil fatty acids		
214.	Sáp dầu mỏ	Petroleum wax		
215.	Sáp dầu mỏ (tổng hợp)	Petroleum wax (synthetic)		
216.	Petrolatum	Petrolatum		
217.	Polietilen glicol	Polyethylene glycol		
218.	Polypropylen glicol	Polypropylene glycol		
219.	Polysorbat 60	Polysorbate 60		
220.	Polysorbat 65	Polysorbate 65		
221.	Polysorbat 80	Polysorbate 80		
222.	Propylen glicol alginat	Propylene glycol alginate		
223.	Silic đioxit	Silicon dioxide		
224.	Axit béo của dầu đỗ tương	Soybean oil fatty acids		

	2.Các chất xúc tác	**2.Catalysts**		
225.	Amoniac	Ammonia		
226.	Amonibisulphit	Ammonium bisulfite		
227.	Sắt (II) sulphat	Ferrous sulfate		
228.	Đioxit lưu huỳnh	Sulfur dioxide		
	3.Các tác nhân làm trong/ trợ lọc	**3.Clarifying agents/ filtration aids**		
229.	Acacia	Acacia		
230.	Carrageenan/Furcelleran	Carrageenan/ Furcelleran		
231.	Casein	Casein		
232.	Gelatin (ăn được)	Gelatin (edible)		
	4. Nhựa trao đổi ion	**4. Ion exchange resins**		
233.	Axit photphoric	Phosphoric acid		
234.	Đioxit silic vô định hình – silica hyđrogel	Silicon dioxide amorphous – silica hydrogel		
235.	Silica sol bền vững trong nước	Stabilized aqueous silica sol		
236.	Axit tanic	Tannic acid		
237.	Bột gỗ/ than mựn	Wood flour/ Sawdust		
	5. Các chất ổn định màu	**5. Colour stabilizers**		
238.	Đextroza	Dextrose		
239.	Natri pirophosphat axit	Sodium acid pyrophosphate		
	6. Các tác nhân làm lạnh và làm mát	**6. Contact freezing and cooling agennts**		
240.	Nước muối	Brine (eg, Salt brine)		
	7. Các tác nhân làm khô/ tác nhân chống đông tụ	**7. Desicating agent/anticaking agents**		
241.	Silic đioxit vô định hình - silicagel	Silicon dioxide amorphous – silica gel		
242.	Tricanxi đioctophotphat	Tricalcium diorthophosphate		

	8. Dung môi (Chiết và chế biến)	**8. Solvents(extraction and processing)**		
243.	Benzyl benzoat	Benzyl benzoate		
244.	1,2 – đicloetan (đicloetan)	1,2 – Dichlororethane (Dichloethane)		
245.	Đietyl tactrat	Diethyl tartrate		
246.	Etanol	Ethanol		
247.	Etyl lactat	Ethyl lactate		
248.	Isobutanol (2-metylpropan –1- ol)	Isobutanol (2- methylpropan –1-ol)		
249.	Ancol Isopropyl	Isopropyl alcohol		
250.	Metanol	Methanol		
251.	Metyl propanol -1	Methyl propanol -1		
252.	Axit nitric	Nitric acid		
253.	2 – Nitropropan	2- Nitropropane		
254.	n-Octyl alcohol	n-Octyl alcohol		
255.	Propan-2- ol (isopropyl ancol)	Propane 2- ol (isopropyl alcohol)		
256.	Triclorofluorometan	Trichlorofluoromethane		
257.	Nước	Water		
	9. Các chất điều chỉnh tinh thể chất béo biến tính	**9. Fat crystal modifiers**		
258.	Este poliglixerin của axit béo	Poliglycerol esters of fatty acids		
259.	Natri đođexylbenzen sunfonat	Sodium dodecylbenzene sulphonate		
260.	Natri lauryl sunfat	Sodium lauryl sulphate		
261.	Sorbitan monostearat	Sorbitan monostearate		
262.	Sorbitan tristearat	Sorbitan tristearate		
	10. Tác nhân keo tụ	**10. Flocculating agents**		
263.	Nhựa acrylamit	Acrylamide resins		
264.	Axit xitric	Citric acid		

265.	Silica	Silica		
	11. Các chất bôi trơn, các tác nhân tẩy rửa và chống dính, trợ khuôn	**11. Lubricants, relase and anti – stick agents, moulding aids**		
266.	Sáp ong	Beeswax		
267.	Sáp carnauba	Carnauba wax		
268.	Dầu thầu dầu	Castor oil		
269.	Dầu cá nhà táng hiđro hóa	Hydrogenated sperm oil		
270.	Lecitin	lecithin		
271.	Magie trisilicat	Magnesium trisilicate		
272.	Mono – và điglixerit của các axit béo	Mono – and diglycerides of fatty acids		
273.	Parafin và dầu parafin	Paraffin and paraffin oils		
274.	Nhựa cỏnh kiến	Shellac		
275.	Axit stearic	Stearic acid		
276.	Stearin	Stearins		
277.	Talc	Talc		
278.	Tetranatri điphotphat	Tetrasodium diphosphate		
279.	Tricanxi photphat	Tri – calcium phosphat		
	12. Các tác nhân kiểm soát vi sinh vật	**12. Micro – organism control agents**		
280.	Đinatri etilen bis đithiocacbamat	Disodium ethylene bis dithiocarbamate		
281.	Etylenđiamin	Ethylenediamine		
282.	Propylen oxit	Propylene oxide		
283.	Natri clorua	Sodium chlorite		
	13.Tác nhân tách đẩy và các khí đóng gói	**13. Propellant and packaging gases**		
284.	Oxy	Oxygen		
	14.Các tác nhân rửa và búc	**14. Washing and peeling**		

	vỏ	**agents**		
285.	Axit oleic	Oleic acid		
	15.Chất dinh dưỡng men	**15.Yeast nutrients**		
286.	Amoni clorua	Ammonium chloride		
287.	Amoni sulphat	Ammonium sulphate		
288.	Amoni phosphat	Ammonium phosphates		
289.	Vitamin B tổng hợp	B – Complex vitamins		
290.	Biotin	Biotine		
291.	Đồng sulphat	Cupric sulphate		
292.	Sắt (II) amonisulphat	Ferrous ammonium sulphate		
293.	Sắt sulphat(II)	Ferrous sulphate		
294.	Inositol	Inositol		
295.	Magie sulphat	Magnesium sulfate		
296.	Niaxin	Niacin		
297.	Axit pantothenic	Pantothenic acid		
298.	Kali hidro cacbonat	Potassium hydrogen carbonate		
299.	Enzim tự phân giải	Yeast autolysates		
300.	Kẽm sulphat	Zinc sulphate		
	16.Các chất hỗ trợ chế biến khác	**16.Other processing aids**		
301.	Sản phẩm ankylen oxit	Alkylene oxide adduct		
302.	Amoni bicacbonat	Ammonium bicarbonate		
303.	BHA	BHA		
304.	BHT	BHT		
305.	Canxi phosphat	Calcium phosphate		
306.	Hương caramen	Caramel flavoring		
307.	Đinatri hiđro phosphat	Disodium hydrogen phosphate		
308.	Axit béo từ dầu đậu tương	Fatty acid of soybean oil		

309.	Ancol béo – glycol ether	Fatty alcohol – glycol ether		
310.	Dầu đậu tương được phân đoạn	Fractionated soybean oil		
311.	Axit fumaric	Fumaric acid		
312.	Glyxerol tripropionat	Glycerol tripropionate		
313.	Glyxin	Glycine		
314.	Axit clohyđric	Hydrochloric acid		
315.	Magiờ clorua	Magnesium chloride		
316.	Magiờ xitrat	Magnesium citrate		
317.	Magiê hiđroxit	Magnesium hydroxide		
318.	Magiờ phosphat	Magnesium phosphate		
319.	Anpha- metyl glucosit trong nước	α - Methyl glycoside water		
320.	Sản phẩm ankilen oxit không ion hóa với chất phân tán	Non - ionogenic alkylene oxide adduct with emulgator		
321.	Axit oxalic	Oxalic acid		
322.	Alcol polietoxi hóa, được biến tính	Polyethoxylated alcohol, modified		
323.	Polyphosphat	Polyphosphate		
324.	Polyme khối polypropylen - polyetylen	Polypropylene – polyethylene block polymer		
325.	Kali phosphat	Potassium phosphates		
326.	Kali sulphat	Potassium sulfate		
327.	Propyl galat	Propyl gallate		
328.	Propan-1-ol	Propan –1-ol		
329.	Propan-1,2-diol	Propane –1,2 - diol		
330.	Natri bisulphit	Sodium bisulfite		
331.	Natri bicacbonat	Sodium bicarbonate		
332.	Natri hexameta phosphat	Sodium hexametaphosphate		
333.	Natri metabisulphit	Sodium metabisulfite		

334.	Mono natri phosphat, NaH2PO4	Sodium phosphate monobasic		
335.	Đi natri phosphat Na2HPO4	Sodium phosphate dibasic		
336.	Tri natri phosphat, Na3PO4	Sodium phosphate tribasic		
337.	Natri poliacrylat – nhựa acrylamit	Sodium polyacrylate – acrylamide resin		
338.	Natri tactrat	Sodium tartrate		
339.	Este axyl béo sobitan và este của axit béo polioxietilen-20-sobitan.	Sorbitan – fatty acyl esters and polyoxyethylene –20- sorbitan fatty acyl esters		
340.	Lexitin đậu tương	Soy lecithin		
341.	Axit sulphuric	Sulfuric acid		
342.	Axit tanic với dịch chiết quebracho	Tannic acid with quebracho extract		
343.	Este axit béo thực vật	Vegetable fatty acid esters		
344.	Axyl béo thực vật (ưa nước)	Vegetable fatty acyl (hydrophillic)		
345.	Xyloza	Xylose		

Part 8.

MAXIMUM PESTICIDE RESIDUE LIMITS IN FOODS

 Common names are used according to the names defined in the list of pesticides announced by Ministry of Agriculture and Rural Development

(Enclosed with Decision No. 31/2006/QD-BNN dated April 27, 2006).

 Chemical names are IUPAC names expressed in English Language

 Code (CAC) – Codes of pesticides arranged according to the list of Codex Alimentarius Pesticides

REFERENCE INSTRUCTION

Appendix 1

LIST FOR REFERENCE ON VETERINARY MEDICINES IN FOOD

TT	Name of veterinary medicine
1	Abamectin
2	Albeldazole
3	Altrenogest
4	Apramycin
5	Azaperone
6	Benzylpenicillin
7	Carazolol
8	Ceftiofur
9	Chlortetracyline
10	Clorsulon
11	Closantel
12	Cyfluthrin
13	Cyhalothrin
14	Cypermethrin
15	Danofloxacin
16	Decoquinate
17	Deltamethrin
18	Dexamethazon
19	Diclazuril
20	Dicyclanil
21	Streptomycin
22	Diminazene
23	Doramectin
24	Eprinomectin
25	Enrofloxacin
26	Febantel
27	Florfenicol

28	Fluazuron
29	Flubendazole
30	Frumequine
31	Flunixin
32	Gentamicin
33	Imidocarb
34	Isometamidium
35	Ivermectin
36	Laidlomycin
37	Lasalocid
38	Levamisole
39	Lincomycin
40	Monensin
41	Moxidectin
42	Narasin
43	Neomycin
44	Nicarbazin
45	Phoxim
46	Pyrlimycin
47	Ractopamine
48	Sarafloxacin
49	Semduramicin
50	Spectinomycin
51	Spiramycin
52	Sulfadimidine
53	Thiabendazole
54	Tilmicosin
55	Trenbolone acetate

56	Triclabendazole
57	Triclorfon
58	Virginiamycin
59	Zeranol

Appendix 3

LIST FOR REFERENCE ON LIMIT OF MICROORGANISMS IN FOOD

TT	Food group
1	Milk and milk product
2	Meat and meat product
3	Fish and seafood
4	Egg and edd product
5	Cereal and cereal product
6	Vegetable, fruit and vegetable, fruit product
7	Mineral water and bottled soft drink
8	Spices and sauce
9	Special food
10	Icecream and ice
11	Tinned food
12	Oil and grease

Appendix 4

LIST FOR REFERENCE ON SUBSTANCES SUPPORT PROCESSING ALLOWED TO USE IN FOOD

TT	Group of substances support processing
1	Antifoam agents
2	Catalysts
3	Clarifying agents/ filtration aids

4	Category contact freezing and cooling agents
5	Desiccating agent/anticaking agents
6	Detergents (wetting agents)
7	Enzyme immobilization agents and supports
8	Enzyme preparations (including immobilized enzymes)
9	Flocculating agents
10	Ion exchange resins, membranes and molecular sieves
11	Lubricants, release and anti - stick agents, moulding aids
12	Microorganism control agents
13	Propellant and packaging gases
14	Solvents, extraction and processing
15	Washing and peeling agents
16	Other processing aids
17	Codex inventory of all compounds as processing aids (Includes substances that may serve other functions)

参考資料２　関連法令・規格・基準

① LAW No.55/2010/QH12：食品安全法

THE NATIONAL ASSEMBLY

SOCIALIST REPUBLIC OF VIET NAM
Independence - Freedom - Happiness

No. 55/2010/QH 12

Hanoi, June 17, 2010

LAW ON FOOD SAFETY

Pursuant to the 1992 Constitution of the Socialist Republic of Vietnam, which was amended and supplemented under Resolution No.
The National Assembly promulgates the Law on Food Safety.

Chapter 1

GENERAL PROVISIONS

Article 1. Scope of regulation

This Law provides for rights and obligations of organizations and individuals in assuring food safety: conditions for assuring safety of foods and food production, trading, import and export; food advertisement and labeling; food testing; food safety risk analysis: prevention, stopping and remedying of food safety incidents; food safety information, education and communication; and responsibilities for state management of food safety.

Article 2. Interpretation of terms

In this Law. the terms below are construed as follows:

1. Food safety means the assurance that food does not cause harm to human health and life.

2. Food-borne disease means a disease caused by eating or drinking a food contaminated with pathogens.

3. Food processing aid means a substance which is intentionally used in the processing of food materials or food ingredients in order to achieve a technological purpose and can be removed from or remains in foods.

4. Food processing means a process of preparing preliminarily processed food or fresh and raw food by an industrial or manual method to create food materials or food products.

5. Catering service establishment means a food-preparing facility, such as shop or stall trading in ready-to-eat food and cooked food restaurant, facility preparing ready-to-eat food portions, canteen or collective kitchen.

6. Conditions for food safety assurance means technical regulations and other regulations applicable to food, food producers and traders and food production and trading activities promulgated by competent state agencies for the purpose of assuring food safety for human health and life.

7. Food testing means the conduct of one or several tests and assessments of the conformity with relevant technical regulations and standards of food, food additives, food processing aids, food fortifiers, packages, tools and food containers.

8. Food trading means the conduct of one, several or all activities of food display, preservation service, transportation service or trading.

8. Food product lot means a specified quantity of a type of products bearing the same name, of the same quality, ingredients and shelf life, and produced by the same producer.

10. Food poisoning means a pathological state caused by absorbing contaminated or poisonous food.

11. Food contamination risk means the possibility that contaminants infiltrate into a food in the course of production or trading.

12. Food contamination means the presence of contaminants in food which are harmful to human health or life.

13. Food additive means a substance with or without nutritious value, which is intentionally added to food in the process of production in order to retain or improve particular characteristics of food.

14. Food production means the conduct of one. several or all activities of cultivation rearing, harvest, fishing, exploitation, preliminary processing, processing, packaging and preservation in order to make food.

15. Primary production means the conduct of one, several or all activities of cultivation, rearing, harvest, fishing and exploitation.

16. Preliminary processing of food means the treatment of cultivated, reared, collected, harvested, fished or exploited products in order to make ready-to-eat fresh and raw food or a food material or semi-finished products for the food processing stage.

17. Food safety incident means a circumstance occurring due to food poisoning, a food-borne disease or another food-induced circumstance which is directly harmful to human health or life.

18. Contaminant means an element which is unwanted and unintentionally added to food and likely to adversely affect food safety.

19. Shelf life means the period before the end of which a food still retains its nutritious value and remains safe under the preservation conditions indicated on its label under the producer's guidance.

20. Food means a product eaten or drunk by humans in fresh and raw, preliminarily processed, processed or preserved form. Food excludes cosmetics, cigarettes and substances used as pharmaceuticals.

21. Fresh and raw food means unprocessed food, including fresh meat, eggs, fish, aquatic products, vegetables, tubers and fruits and other unprocessed foods.

22. Micronutrient-fortified food means food supplemented with vitamins, minerals and trace elements in order to prevent or remedy the harm caused by the deficiency of these substances or elements to the health of the community or a particular group in the community.

23. Functional food means a food used to support a function of the human body, relax the body, boost the immunity against diseases, including supplements, health protection food and medical nutritious food.

24. Genetically modified food means a food containing one or several ingredients which have been genetically engineered.

25. Irradiated food means a food which has been irradiated by a radioactive source to treat the food, preventing it from degeneration.

26. Street food means a food processed for instant consumption and sold by vendors on streets or in public or similar places.

27. Prepackaged food means a food completely packaged and labeled, ready for sale for further processing or instant consumption.

28. Tracing of food origin means the tracking down of the creation and circulation of food.

Article 3. Principles of food safety management

1. To assure food safety is the responsibility of all food producers and traders.

2. Food production and trading are conditional activities; and food producers and traders shall bear responsibility for the safety of food they produce or trade in.

3. Food safety management must be based on relevant technical regulations and regulations promulgated by competent state management agencies and applicable standards announced by producers.

4. Food safety management must be conducted throughout the course of food production and trading on the basis of food safety risk analysis.

5. Food safety management must ensure a clear division of responsibilities and powers and inter-sector coordination.

6. Food safety management must meet requirements of socio-economic development.

Article 4. State policies on food safety

1. To elaborate strategies and master plans on food safety assurance, regarding the planning of zones for safe food production according to the food supply chain as a priority key task.

2. To use state resources and other resources to invest in scientific research and technological application to serve food safety risk analysis; to build new laboratories and upgrade some existing ones up to regional or international standards; to raise the capacity of existing analysis laboratories; to support investment in building zones

producing safe food materials, wholesale markets for farm produce and food, and industrial-scale cattle and poultry slaughterhouses.

3. To encourage food producers and traders to renew technologies and expand their production: to produce high-quality and safe food; to fortify food with essential micronutrients: to build their brands and develop their safe food supply systems.

4. To establish a legal framework and realize a roadmap for compulsory application of good manufacturing practices (GMP), good agricultural practices (GAP), good hygiene practices (GHP) and hazard analysis and critical control points (HACCP) and other advanced food safety management systems in food production and trading.

5. To undertake international cooperation, step up the conclusion of treaties and international agreements on accreditation and mutual recognition in the field of food.

6. To promptly commend and reward organizations and individuals that produce or trade in safe foods.

7. To encourage and create conditions for domestic societies, associations, organizations and individuals and foreign organizations and individuals to invest or participate in the elaboration of standards, technical regulations and testing of food safety.

8. To increase investment in and diversify forms and methods of public information and education to raise public awareness about the consumption of safe food, sense of responsibility and business ethics of food producers and traders towards the community.

Article 5. Prohibited acts

1. Using for food processing purposes materials other than those permitted for use in food.

2. Using food materials which have passed their shelf life, arc of unclear origin or unsafe for food production and processing.

3. Using food additives or food processing aids which have passed their shelf life or are outside the list of those permitted for use or using permitted additives or food processing aids in excess of allowable dosages: using chemicals of unclear origins or banned chemicals in food production or trading.

4. Using animals which died of diseases, epidemics or unidentified causes or animal carcasses subject to destruction for food production or trading.

5. Producing or trading in:

a/ Food breaching regulations on goods labeling;

b/ Food unconformable with relevant technical regulations:

c/ Degenerated food;

d/ Food containing toxic or hazardous substances or contaminated with toxins or contaminants in excess of allowable limits;

e/ Food which is contaminated for the reason that their packages or containers are unsafe, broken, torn or deformed in the course of transportation;

f/ Meat or meat products which have not yet gone through veterinary inspection or have gone through veterinary inspection but fail to meet requirements;

g/ Food banned from production or trading for the purpose of epidemic prevention and combat;

h/ Food for which regulation conformity declarations have not yet been registered with competent state agencies in case such food subject to regulation conformity declaration registration;

i/ Food which is of unclear origin or has passed its shelf life.

6. Using vehicles which can cause food contamination or vehicles which have transported toxic or hazardous substances but not yet been cleaned up for transporting food materials or foods.

7. Supplying untruthful or forging food testing results.

8. Covering up. falsifying or obliterating scenes or evidence of food safety incidents or committing other acts of intentionally obstructing the detection and remedy of food safety incidents.

9. Employing persons infected with contagious diseases in food production or trading.

10. Producing or trading in food at establishments without certificates of satisfaction of food safety conditions prescribed by law.

11. Advertising food untruthfully or confusingly to consumers.

12. Publishing or publicly notifying misleading information on food safety, thus causing public disparagement or damage to food production and trading.

13. Using illegally roadbeds, pavements. corridors or common yards, passageways and auxiliary spaces for street food processing, producing or trading.

Article 6. Handling of violations of the law on food safety

1. Food producers and traders that violate the law on food safely shall, depending on the nature and severity of their violations, be administratively handled or examined for penal liability. If causing damage, they shall pay compensations and remedy consequences under law.

2. Persons who abuse their positions and powers to violate this Law or other regulations on food safety shall, depending on the nature and severity of their violations, be disciplined or examined for penal liability. If causing damage, they shall pay compensations under law.

3. Fines for administrative violations specified in Clause 1 of this Article comply with the law on handling of administrative violations In case the highest fine prescribed by the law on handling of administrative violations is lower than 7 times the value of the violating food, a higher fine not exceeding 7 times the value of the violating food may be imposed. Money amounts earned from violations shall be confiscated under law.

4. The Government shall specify administrative violations in the field of food safely mentioned in this Article, and forms and levels of sanctioning of these violations.

Chapter II

RIGHTS AND OBLIGATIONS OF ORGANIZATIONS AND INDIVIDUALS IN ASSURING FOOD SAFETY

Article 7. Rights and obligations of food producers

1. Food producers have the following rights:

a/ To decide on and announce standards of products they produce and supply; to decide on application of internal control measures to assure food safety;

b/ To request food traders to cooperate in recalling and disposing of unsafe food;

c/ To select conformity assessment organizations and testing establishments already designated to certify regulation conformity;

d/ To use standard conformity stamps and regulation conformity stamps and other marks for their products under law;

e/ To lodge complaints and denunciations and file lawsuits under law;

f/ To get compensations for damage under law.

2. Food producers have the following obligations:

a/ To comply with conditions for food safety assurance, assure food safety in the process of production, and take responsibility for the safety of food they produce;

b/ To comply with the Government's regulations on fortification of micronutrients the deficiency of which will affect community health;

c/ To provide adequate and accurate information on products on their labels and packages or in documents accompanying food under the law on goods labeling;

d/ To establish a self-inspection process in the course of food production:

e/ To provide truthful information on food safety: to give timely, adequate and accurate warnings about the risk of food to become unsafe and provide preventive methods for sellers and consumers; to notify requirements on the transportation, storage, preservation and use of food:

f/ To promptly suspend food production, notify concerned parties of and take consequence remedies upon detecting unsafe food or food unconformable with announced standards or relevant technical regulations:

g/ To keep dossiers, food samples and necessary information under regulations on tracing of food origin; to comply with regulations on tracing of origins of unsafe foods under Article 54 of this Law;

h/ To recall and dispose of food which has passed their shelf life or are unsafe. In case foods are to be destroyed, the food destruction must comply with the law on environmental protection and other relevant laws and food producers shall bear all expenses for destruction;

i/ To comply with law as well as. inspection or examination decisions of competent state agencies;

j/ To pay sampling and testing expenses as prescribed in Article 48 of this Law;

k/ To pay compensations under law for damage caused by unsafe food they produce.

Article 8. Rights and obligations of food traders

1. Foods traders have the following rights:

a/ To decide on internal control measures to maintain food quality, hygiene and safety;

b/ To request food producers and importers to cooperate in recalling and disposing of unsafe food:

c/ To select testing establishments to inspect food safety; to select testing establishments already designated for certification of regulation conformity for imported food;

d/ To lodge complaints and denunciations and file lawsuits under law;

e/ To get compensations for damage under law.

2. Foods traders have the following obligations:

a/ To comply with conditions for food safety assurance in the course of trading and take responsibility for the safety of food they trade in;

b/ To inspect food origins and labels and documents related to food safety; to keep dossiers on food; to comply with regulations on tracing of origins of unsafe food under Article 54 of this Law;

c/ To supply truthful information of food safety; to notify consumers of safety assurance conditions in the course of food transportation, storage, preservation and use:

d/ To promptly provide information on risks of food to become unsafe and methods of risk prevention to consumers upon receiving warnings of food producers or importers;

e/ To promptly suspend their trading operation and inform food producers or importers and consumers of unsafe food upon detecting such food:

f/ To promptly report to a competent agency on a food poisoning or a disease borne by foods they trade in and promptly remedy its consequences upon detecting it;

g/ To cooperate with food producers and importers and competent state agencies in investigating food poisoning cases in order to remedy consequences, recall or dispose of unsafe food;

h/ To comply with law as well as inspection or examination decisions of competent state agencies;

i/ To pay food sampling and testing expenses as specified in Article 48 of this Law;

j/ To pay compensations under law for damage caused by unsafe food they trade in.

Article 9. Rights and obligations of food consumers

1. Food consumers have the following rights:

a/ To be provided with truthful information on food safety, and appropriate instructions for food use. transportation, storage, preservation, selection and use; to be informed of risks of food to become unsafe and methods of risk prevention upon receiving warnings;

b/ To request food producers and traders to protect their interests under law;

c/ To request consumer interest protection organizations to protect their lawful rights and interests under the law on consumer interest protection:

d/To lodge complaints and denunciations and file lawsuits under law;

e/ To get compensations under law for their damage caused by consumption of unsafe food.

2. Food consumers have the following obligations:

a/ To fully comply with regulations and guidance of food producers and traders on food safety in transportation, storage, preservation and use:

b/ To promptly provide information on risks of food to become unsafe upon detecting these risks, and report food poisonings and food-home diseases to the nearest People's Committee, medical examination and treatment establishments, competent state agencies and food producers and traders:

c/ To comply with the law on environmental protection in the course of food consumption.

Chapter III

FOOD SAFETY ASSURANCE CONDITIONS

Article 10. General conditions on food safety assurance

1. To conform with relevant technical regulations, to meet limit requirements for pathogenic microorganisms, residues of plant protection drugs or veterinary drugs, heavy metals, contaminants and other substances in food that may cause harm to human health and life.

2. Depending on each type of food, in addition to the conditions specified in Clause 1 of this Article, food must comply with one or more of the following regulations:

a/ Regulations on use of food additives and processing aids in food production and trading:

b/ Regulations on food packaging and labeling;

c/ Regulations on food preservation.

Article 11. Safety assurance conditions for fresh and raw food

1. To meet the conditions specified in Article 10 of this Law.

2. To guarantee the origin tracing under Article 54 of this Law.

3. To have veterinary hygiene certificates issued by competent veterinary agencies for fresh and raw food of animal origin under the animal health law.

Article 12. Safety assurance conditions for processed food

1. To meet the conditions specified in Article 10 of this Law.

2. Original materials of food must be safe and retain their inherent properties. Materials forming a food must not interact with one another to create products harmful to human health and life.

3. Prepackaged processed food must have regulation conformity announcements registered with competent state agencies prior to market sale.

The Government shall specify the registration of regulation conformity announcements of prepackaged processed food and their validity term.

Article 13. Safety assurance conditions for micronutrient-fortified food

1. To meet the conditions specified in Article 10 of this Law.

2. Original materials of food must be safe and retain their inherent properties. Materials forming a food must not interact with one another to create products harmful to human health and life.

3. Only micronutrients being vitamins, minerals and trace elements on the Minister of Health's list may be added to food with a content unharmful to human health and life.

Article 14. Safety assurance conditions for functional foods

1. To meet the conditions specified in Article 10 of this Law.

2. To have scientific information and documents proving the effects of their ingredients that create the announced functions.

3. Functional foods which are first put on market sale must have a report on testing of their effect.

4. The Minister of Health shall specify the management of functional foods.

Article 15. Safety assurance conditions for genetically modified food

1. To meet the conditions specified in Article 10 of this Law.

2. To comply with the Government's regulations on safety assurance for human health and the environment.

Article 16. Safety assurance conditions for irradiated food

1. To meet the conditions specified in Article 10 of this Law.

2. To be on the list of food permitted for irradiation.

3. To meet regulations on irradiation doses.

4. The Minister of Health, the Minister of Agriculture and Rural Development and the Minister of Industry and Trade shall promulgate lists of food permitted for irradiation and allowable irradiation doses for food in their assigned management domains.

Article 17. Safety assurance conditions for food additives and processing aids

1. To conform with relevant technical regulations, to comply with regulations on food additives and processing aids.

2. To have use instructions written on their labels or inserts in each product unit in Vietnamese and another language depending on the origin of products.

3. To be on the Minister of Health's list of food additives and processing aids permitted for use in food production and trading.

4. To register regulation conformity announcements with competent state agencies prior to market sale.

The Government shall specify the registration of regulation conformity announcements and their validity term for food additives and processing aids.

Article 18. Safety assurance conditions for food-packaging tools and food packages and containers

1. To be made of safe materials, guaranteeing that they do not release toxic substances, strange smell or taste into food, and they preserve food quality within the shelf life.

2. To conform with relevant technical regulations, to meet the Ministry of Health's regulations on food-packaging tools and food packages and containers.

3. To register regulation conformity announcements with competent state agencies prior to market sale.

The Government shall specify the registration of regulation conformity announcements and their validity term for food-packaging tools and food packages and containers.

Chapter IV

FOOD SAFETY ASSURANCE CONDITIONS FOR FOOD PRODUCTION AND TRADING

Section I. GENERAL CONDITIONS ON FOOD SAFETY ASSURANCE FOR FOOD PRODUCTION AND TRADING

Article 19. Food safety assurance conditions for food producers and traders

1. Food producers and traders must meet the following conditions:

a/ Having suitable venues with appropriate areas and safety distance from toxic and contaminating sources and other harmful factors;

b/ Having sufficient technically qualified water for food production and trading:

c/ Having adequate appropriate equipment to process materials and process, package, preserve and transport different types of food: having adequate washing and sterilization equipment and tools, disinfecting fluid, and equipment for preventing and controlling insects and harmful animals;

d/ Having a waste treatment system which operates regularly under the law on environmental protection:

e/ Maintaining food safety assurance conditions and keeping records of source and origin of food materials and other documents on the entire food production and trading process;

f/ Complying with regulations on health, knowledge and practices of persons directly engaged in food production and trading.

2. The Minister of Health, the Minister of Agriculture and Rural Development and the Minister of Industry and Trade shall promulgate national technical regulations and specify food safely assurance conditions for food producers and traders in their assigned management domains.

Article 20. Food safety assurance conditions for food preservation

1. Food producers and traders must meet the following conditions for food preservation:

a/ Having preservation places and means which are large enough to preserve each type of food separately, allow technically safe and precise loading and unloading and guarantee preservation hygiene:

b/ Preventing the effects of temperature, humidity, insects, animals, dust, strange smell and negative environmental effects: guaranteeing sufficient light: having special-use equipment for adjusting temperature, humidity and other climate conditions, ventilation equipment and other special preservation conditions required by each type of food;

c/ Complying with preservation regulations of food producers and traders.

2. The Minister of Health, the Minister of Agriculture and Rural Development and the Minister of Industry and Trade shall promulgate national technical regulations and specify food safely assurance conditions for food preservation in their assigned management domains.

Article 21. Food safety assurance conditions for food transportation

1. Organizations and individuals transporting food must meet the following conditions:

a/ Means for transporting foods are made of materials which do not contaminate food and food packages and are easy to clean;

b/ Food preservation conditions as required by food producers and traders are maintained throughout the course of transportation;

c/ Food is not transported together with toxic goods or goods which may cause cross-contamination and affect food quality.

2. Competent state management agencies shall provide means for transporting food and routes for transporting fresh and raw food in urban areas.

Article 22. Food safety assurance conditions for small-scale food production and trading

1. Small-scale food producers and traders must meet the following food safety assurance conditions:

a/ Ensuring safely distance from toxic and contaminating sources:

b/ Having sufficient technically qualified water for food production and trading:

c/ Having appropriate equipment for food production and trading which neither harm nor contaminate food;

d/ Using materials, chemicals, food additives, processing aids, food-packaging tools and food packages and containers in preliminary processing, processing and preservation of food;

e/ Complying with regulations on health, knowledge and practices of persons directly engaged in food production and trading:

f/ Collecting and treating waste under the law on environmental protection;

g/ Maintaining food safety assurance conditions and storing trading-related information to ensure the tracing of food origin.

2. The Minister of Health, the Minister of Agriculture and Rural Development and the Minister of Industry and Trade shall promulgate national technical regulations and specify food safety assurance conditions for small-scale food production and trading in their assigned management domains.

3. People's Committees of provinces and centrally run cities (below referred to as provincial-level People's Committees) shall promulgate local technical regulations and specify food safety assurance conditions for small-scale food production and trading for local particular food.

Section 2. FOOD SAFETY ASSURANCE CONDITIONS FOR PRODUCTION AND TRADING IN FRESH AND RAW FOOD

Article 23. Food safety assurance conditions for producers of fresh and raw food

1. Producers of fresh and raw food must meet the following conditions:

a/ Meeting requirements on cultivation land, water sources and production places for producing safe food;

b/ Complying with the laws on use of plant varieties and livestock breeds; fertilizer, animal feed, plant protection drugs, veterinary drugs, growth, weight and sexual maturity stimulants, food preservatives and other food safety-related substances;

c/ Complying with regulations on animal quarantine and hygiene in animal slaughtering; and plant quarantine for crop products;

d/ Treating waste under the law on environmental protection:

e/ Using detergents, disinfectants and antidotes which are safe for humans and the environment;

f/ Maintaining food safety assurance conditions, keeping records of source and origin of food materials and other documents on the entire process to produce fresh and raw food.

2. The Minister of Agriculture and Rural Development shall provide specific food safety assurance conditions for producers of fresh and raw food.

Article 24. Food safety assurance conditions for traders of fresh and raw food

1. Traders of fresh and raw food must meet the following conditions:

a/ Meeting safety assurance conditions for food-packaging tools and food packages and containers and for food preservation and transportation specified in Articles 18. 20 and 21 of this Law;

b/ Ensuring and maintaining hygiene in business places.

2. The Minister of Agriculture and Rural Development shall provide specific food safety assurance conditions for traders of fresh and raw food.

Section 3. FOOD SAFETY ASSURANCE CONDITIONS FOR PRELIMINARY PROCESSING AND PROCESSING OF FOOD AND TRADING IN PROCESSED FOOD

Article 25. Food safety assurance conditions for preliminary processors and processors of food

1. To meet the conditions specified in Article 19 of this Law.

2. The preliminary processing or processing of food must ensure that food is neither contaminated nor in contact with contaminants or toxic elements.

Article 26. Food safety assurance conditions for food materials and additives, processing aids and micronutrients for food processing

1. Materials used for food processing must be within their shelf life, of clear origin and safe and retain their inherent properties. Materials forming a food must not interact with one another to create products harmful to human health and life.

2. The use of micronutrients. food additives and processing aids must comply with Articles 13 and 17 of this Law.

Article 27. Food safety assurance conditions for traders of processed food

1. Traders of prepackaged processed food must meet the following conditions:

a/ Complying with regulations on food labeling:

b/ Meeting the safety assurance conditions for food-packaging tools and food packages and containers and for food preservation specified in Articles 18 and 20 of this Law:

c/ Ensuring and maintaining hygiene in business places;

d/ Preserving food as required by producers.

2. Traders of non-prepackaged processed food must meet the following conditions:

a/ Adopting measures to ensure that food is neither spoiled, moldy nor in contact with insects, animals, dust and other contaminants;

b/ Washing or sterilizing the tableware and food containers before use of instant food;

c/ Obtaining information on the origin and production date of food.

Section 4. FOOD SAFETY ASSURANCE CONDITIONS FOR COMMERCIAL PROVISION OF CATERING SERVICES

Article 28. Food safety assurance conditions for food processing places and commercial provision of catering services

1. Kitchens are arranged in a way to ensure that unprocessed and processed food is not cross-contaminated.

2. Having sufficient technically qualified water for food processing and trading.

3. Having hygienic devices for collecting and containing garbage and waste.

4. Sewers in the areas of shops and kitchens must be drained without any stagnancy.

5. Eating rooms must be airy. cool, sufficiently lit and kept clean and have equipment to prevent insects and harmful animals.

6. Having food preservation equipment and toilets and collecting waste and garbage daily.

7. Heads of units having collective kitchens shall take responsibility for food safety.

Article 29. Food safety assurance conditions for food processors and catering services providers

1. To have separate utensils and containers for raw and cooked food.

2. To ensure safety and hygiene of cooking and processing utensils.

3. The tableware must be made of safe materials and kept clean and dry.

4. To comply with regulations on health, knowledge and practices of persons directly engaged in food production and trading.

Article 30. Food safety assurance conditions for food processing and preservation

1. To use safe food and food materials of clear origin and keep food samples.

2. To process food safely and hygienically.

3. Food on sale must be placed in glass showcases or hygienic preservation containers on tables or shelves above the ground, which can prevent dust, rain, sunshine, insects and harmful animals.

Section 5. FOOD SAFETY ASSURANCE CONDITIONS FOR STREET FOOD SALE

Article 31. Food safety assurance conditions for street food display places

1. To be separated from toxic and contaminating sources.

2. To display food on tables, shelves or means which meet requirements on food hygiene and safety and street landscape.

Article 32. Food safety assurance conditions for food materials and containers, eating utensils, food containers and street vendors

1. Materials for processing street food must meet food safety requirements and have clear source and origin.

2. Eating utensils and food containers must be hygienically safe.

3. Packages and materials in direct contact with food must neither contaminate nor release contaminants into food.

4. To have devices to prevent sunshine, rain, dust, insects and harmful animals.

5. To sufficiently have technically qualified water for food processing and trading.

6. To comply with regulations on health, knowledge and practices of persons directly engaged in food production and trading.

Article 33. Responsibilities for management of street food sale

1. The Minister of Health shall specify food safety assurance conditions for street food sale.

2. People's Committees at all levels shall manage street food sale in their localities.

Chapter V

CERTIFICATION OF FOOD SAFETY ELIGIBILITY FOR ESTABLISHMENTS IN FOOD PRODUCTION AND TRADING

Article 34. Establishments and conditions for the grant and withdrawal of certificates of food safety eligibility

1. An establishment shall be granted a certificate of food safety eligibility when it fully meets the following conditions:

a/ Having adequate conditions for assuring food safety suitable to each type of food production and trading as prescribed in Chapter IV of this Law;

b/ Having registered for food production and trading as indicated in its business registration certificate.

2. An organization or individual shall have its/his/her certificate of food safety eligibility withdrawn when it/he/she no longer satisfies all conditions prescribed in Clause 1 of this Article.

3. The Government shall specify establishments not subject to the grant of certificates of food safety eligibility.

Article 35. Competence to grant and withdraw certificates of food safety eligibility

The Minister of Health, the Minister of Agriculture and Rural Development and the Minister of Industry and Trade shall specify the competence to grant and withdraw certificates of food safety eligibility in their assigned management domains.

Article 36. Dossiers, order and procedures for the grant of certificates of food safety eligibility

1. A dossier of application for a certificate of food safety eligibility comprises:

a/ An application for a certificate of food safety eligibility:

b/ A copy of the business registration certificate:

c/ Written explanations about the satisfaction of food safety and hygiene conditions of physical foundations, equipment and tools as prescribed by competent state management agencies:

d/ Health certificates of the establishments owner and persons directly engaged in food production and trading, issued by a district- or higher-level health establishment:

e/ Certificates of training in knowledge about food safety and hygiene of the establishment's owner and persons directly engaged in food production and trading as prescribed by line ministers.

2. The order of and procedures for the grant of certificates of food safety eligibility

a/ Food producers and traders shall submit dossiers of application for certificates of food safety eligibility to a competent state management agency defined in Article 35 of this Law;

b/ Within 15 days after the receipt of a complete and valid dossier, the competent state agency shall conduct field inspection of food safety assurance conditions at

the producer's or trader's establishment. If all conditions are met. it shall grant a certificate of food safety eligibility; in case of refusing to grant a certificate, it shall issue a written reply clearly stating the reason.

Article 37. Validity duration of certificates of food safety eligibility

1. A certificate of food safety eligibility is valid for 3 years.

2. At least 6 months before the expiration date of a certificate of food safety eligibility, if the food producer or trader wishes to continue its/ his/her production or trading activities, it/he/she shall submit a dossier of application for the re-grant of a certificate of food safety eligibility. Dossiers of application and the order of and procedures for re-grant of certificates comply with Article 36 of this Law.

Chapter VI

FOOD IMPORT AND EXPORT

Section I. SAFETY ASSURANCE CONDITIONS FOR IMPORTED FOOD

Article 38. Safety assurance conditions for imported food

1. Imported food, food additives, processing aids and imported food-packaging tools, food packages and containers must satisfy relevant conditions prescribed in Chapter III of this Law and the following conditions:

a/ Having their technical regulation-conformity announcements registered at a competent state agency before import;

b/ Having obtained a notice of satisfaction of import requirements issued by a designated inspection agency for each goods lot as prescribed by line ministers.

2. In addition to the conditions prescribed in Clause 1 of this Article, functional food, micronutrient-fortified food, genetically modified food and irradiated food must obtain a certificate of free sale or health certificate as prescribed by the Government.

3. In case Vietnam has not yet promulgated relevant technical regulations applicable to imported food, food additives and processing aids and imported food- packaging tools, food packages and containers, international agreements or treaties to which the Socialist Republic of Vietnam is a contracting party will apply.

Article 39. State inspection of food safety with regard to imported food

1. Imported food, food additives and processing aids and imported food-packaging tools, food packages and containers arc subject to state inspection of food safety, except for some kinds of food which are exempted from state inspection of food safety as prescribed by the Government.

2. Food imported from countries which have concluded with Vietnam treaties on mutual recognition of food safety certification is eligible for reduced inspection, except for cases in which signs of violation of Vietnam's law on food safely are warned or have been detected.

3. The Government shall specify the exemption from state inspection of food safety for some kinds of imported food; the order of and procedures for state inspection of food safety in countries from which food will be exported to Vietnam under treaties to which Vietnam is a contracting party.

Article 40. Order, procedures and methods of state inspection of food safety with regard to imported food

1. The order of and procedures for state inspection of food safety with regard to imported food, food additives, processing aids, food-packaging tools, food packages and containers comply with the law on product and goods quality and the following provisions:

a/ Food may be transported to warehouses for preservation pending customs clearance only when they have a registration for food safety inspection:

b/ Customs clearance shall only be effected when there is a written certification of satisfaction of import requirements.

2. Modes of state inspection of food safety for imported food, food additives, processing aids, food-packaging tools, food packages and containers:

a/ Tightened inspection:

b/ Normal inspection;

c/ Reduced inspection.

3. The Minister of Health, the Minister of Agriculture and Rural Development and the Minister of Industry and Trade shall specify agencies in charge of conducting state inspection of food safety and the application of modes of slate inspection of food safety with regard to imported food, food additives, processing aids, food-packaging tools, food packages and containers.

Section 2. SAFETY ASSURANCE CONDITIONS FOR EXPORTED FOOD

Article 41. Safety assurance conditions for exported food

1. Meeting Vietnam's food assurance safety conditions.

2. Being conformable with food safety regulations of countries of importation as provided in contracts or treaties and international agreements on mutual recognition of results of conformity evaluation signed with concerned countries or territories.

Article 42. Certification of exported food

1. Competent Vietnamese state agencies shall grant certificates of free sale, health certificates, certificates of origin or other certificates for exported food, if so requested by countries of importation.

2. The Minister of Health, the Minister of Agriculture and Rural Development and the Minister of Industry and Trade shall provide for dossiers and procedures for the grant of certificates specified in Clause 1 of this Article in their assigned management domains.

Chapter VII.

FOOD ADVERTISEMENT AND LABELING

Article 43. Food advertisement

1. Food advertisement shall be carried out by food producers and traders or advertisement service providers under the law on advertisement.

2. Before registering for food advertisement, organizations and individuals that have food to be advertised shall send dossiers to competent state management agencies for certification of advertisement contents.

3. Advertisement makers, advertisement service providers and organizations and individuals with to-be-advertised food may only make advertisement after the

advertisement contents are appraised, and must strictly comply with certified contents.

The Minister of Health, the Minister of Agriculture and Rural Development and the Minister of Industry and Trade shall specify kinds of food of which advertisement must be registered: and the competence, order and procedures for certification of contents of food advertisements under their assigned management domains.

Article 44. Food labeling

1. Producers and importers of food, food additives and processing aids in Vietnam shall label food under the law on goods labeling.

The shelf life of food shown on their labels shall, depending on the type of food, be written as ″expiry date″, ″use by” or ″best before″.

2. For functional food, food additives, irradiated food and genetically modified food.in addition to the provisions of Clause 1 of this Article, the following provisions must be complied with:

a/ For functional food, the phrase ″thucpham chucnang″ (functional food) must be shown and the effect of substituting curative medicines must not be expressed in any form;

b/ For food additives, the phrase ″pint gia thuc pham″ (food additives) and information on the scope of use. dosage and use instructions must be shown;

c/ For irradiated food, the phrase ″time pham da qua chieu xa″ (irradiated food) must be shown:

d/ For certain kinds of genetically modified food, the phrase ″thuc pham bien dot gen” (genetically modified food) must be shown.

3. Based on socio-economic conditions in each period, the Government shall issue specific regulations on food labeling and shelf life: and kinds of genetically modified foods and the composition percentage of food with modified genes to be indicated on their labels.

Chapter VIII

FOOD TESTING. ANALYSIS OF FOOD SAFETY RISKS, PREVENTION AND REMEDY OF FOOD SAFETY INCIDENTS

Section I. FOOD TESTING

Article 45. Requirements on food testing

1. Food testing shall be conducted in the following cases:

a/ At the request of food producers and traders or other concerned organizations and individuals:

b/ For the state management of food safety.

Food testing for state management work shall be conducted by food testing establishments designated by line ministers.

2. Food testing must:

a/ Ensure objectivity and accuracy:

b/ Observe professional and technical regulations.

Article 46. Food testing establishments

1. A food testing establishment must satisfy the following conditions:

a/ Having an organizational apparatus and technical capacity meeting the requirements of national or international standards applicable to testing establishments;

b/ Establishing and maintaining a managerial system meeting the requirements of national or international standards:

c/ Registering the operation of assessment of conformity with standards or technical regulations with a competent state agency when engaged in certification of standard or regulation conformity.

2. Food testing establishments may provide testing services, collect testing charges and take responsibility before law for the results of tests they perform.

3. Line ministers shall specify conditions for testing establishments defined in Clause 1 of this Article.

Article 47. Testing for the settlement of food safety-related disputes

1. Agencies with dispute settlement competence shall designate testing-verification establishments to test foods involved in disputes. Testing results of these establishments shall be used as a basis for the settlement of food safety-related disputes.

2. Testing establishments designated to conduct verification are state-run ones which satisfy all the conditions specified in Clause 1. Article 46 of this Law.

3. Line ministers shall specify conditions for testing-verification establishments and a list of eligible testing-verification establishments.

Article 48. Expenses for food sampling and testing

1. Expenses for food sampling and testing to serve food safety examination and inspection shall be paid by agencies that decide on such examination and inspection.

2. Based on testing results, if agencies that decide on food safety examination and inspection conclude that food producers or traders violate the law on food safety, the violators shall refund food sampling and testing expenses to the examination and inspection agencies.

3. Organizations and individuals that request food sampling and testing shall themselves pay expenses for food sampling and testing.

4. Expenses for food sampling and testing in food safety-related disputes or complaints shall be paid by petitioners or complainants. When testing results affirm that food producers or traders violate regulations on food safety, the violators shall refund expenses for sampling and testing of foods involved in disputes to the petitioners or complainants.

Section 2. ANALYSIS OF FOOD SAFETY RISKS

Article 49. Objects subject to analysis of food safety risks

1. Foods of high poisoning rate.

2. Foods with samples taken for surveillance showing high rate of violating technical regulations on food safety.

3. Food production or trading environment or establishments which are suspected of causing pollution.

4. Foods or food production or trading establishments which are subject to risk analysis to meet management requirements.

Article 50. Analysis of food safety risks

1. Analysis of food safety risks covers assessment, management and communication of risks to food safety.

2. Assessment of food safety risks covers:

a/ Investigating and testing to identify hazards to food safety which belong to groups of microbiological, chemical and physical agents;

b/ Identifying risks of health hazards to food safety, extent and scope of impacts of hazards on the community health.

3. Management of food safety risks covers:

a/ Implementing solutions to limiting food safety risks in each stage of the food supply chain;

b/ Controlling and coordinating to limit food safety risks in providing catering services and conducting other food production or trading activities.

4. Communication on food safety risks covers:

a/ Providing information on preventive measures in cases of food poisoning or unsafe food-borne diseases to raise public awareness about and responsibility for food safety risks;

b/ Notifying or forecasting food safety risks; building an information system for warning food safety risks and food-borne diseases.

Article 51. Responsibility to analyze food safety risks

The Ministry of Health, the Ministry of Agriculture and Rural Development and the Ministry of Industry and Trade shall analyze food safety risks in their assigned management domains under Articles 49 and 50 of this Law.

Section 3. PREVENTION AND REMEDY OF FOOD SAFETY INCIDENTS

Article 52. Prevention of food safety incidents

1. Organizations and individuals that detect signs of a food safety incident shall immediately notify it to the nearest health establishment or People's Committee or a competent state agency for taking prompt preventive measures.

2. Measures to prevent food safety incidents include:

a/ Ensuring safety in the process of food production, trading and consumption;

b/ Educating, propagating and disseminating food safety-related knowledge and practices to producers, traders and consumers;

c/ Examining and inspecting food safety in food production and trading;

d/ Analyzing food contamination risks;

e/ Investigating, surveying and storing data on food safety:

f/ Storing food samples.

3. People's Committees at all levels shall implement measures to prevent food safety incidents in their localities.

4. The Ministry of Health, the Ministry of Agriculture and Rural Development and the Ministry of Industry and Trade shall organize the implementation of programs on surveillance and prevention of food safety incidents and the application of measures to prevent food safety incidents occurring overseas which are likely to affect Vietnam in their assigned management domains.

5. The Ministry of Health shall assume the prime responsibility for. and coordinate with concerned ministries and sectors in. establishing a system for warning food safety incidents.

Article 53. Remedy of food safety incidents

1. Organizations and individuals that detect a food safety incident occurring at home or overseas which affects Vietnam shall declare it to the nearest health establishment or People's Committee or to the Ministry of Health, the Ministry of Agriculture and Rural Development or the Ministry of Industry and Trade for taking prompt remedies.

2. Remedies for food safety incidents include:

a/ Promptly detecting, and giving first aid and medical treatment to. poisoned persons or persons infected with food-borne diseases or in other food-induced circumstances harmful to human health or life:

b/ Investigating cases of food poisoning, identifying causes of poisoning and food-borne diseases and tracing the origin of poisoning or disease-transmitting food;

c/ Suspending production or trading activities:

recalling and disposing of poisoning or disease-transmitting food being marketed;

d/ Notifying food poisoning and food-borne diseases to concerned organizations and individuals:

e/ Taking measures to prevent risks of food poisoning and food-borne diseases.

3. People's Committees at all levels shall take remedies for food safety incidents in their localities.

4. The Minister of Health shall:

a/ Specify the declaration of food safety incidents:

b/ Assume the prime responsibility for. and coordinate with concerned ministries and sectors in. taking measures to prevent food safety incidents occurring overseas which are likely to affect Vietnam.

5. Suppliers of poisoning foods shall pay all medical treatment expenses for poisoned persons and pay compensations under the civil law.

Section 4. TRACING OF THE ORIGIN AND RECALL AND DISPOSAL OF UNSAFE FOODS

Article 54. Tracing of the origin of unsafe foods

1. Food producers and traders shall trace the origin of unsafe foods in the following cases:

a/ At the request of competent state agencies;

b/ When detecting that food products they produce or trade in are unsafe.

2. Food producers and traders that trace the origin of unsafe foods shall:

a/ Identify and notify lots of unsafe food products:

b/ Request food trading agents to report on the quantity of products of unsafe food lots, actual quantities of products left in stock and being marketed:

c/ Summarize, and report to competent state agencies on. recall plans and disposal measures.

3. Competent state agencies shall inspect and supervise the tracing of the origin of unsafe foods.

Article 55. Recall and disposal of unsafe foods

1. The following foods shall be recalled:

a/ Foods which are still marketed after their shelf life:

b/ Foods unconformable with relevant technical regulations;

c/ Foods being new technological products not yet been permitted for circulation;

d/ Foods which are degenerated during preservation, transportation or trading;

e/ Foods which contain substances banned from use or in which appear contaminants in excess of allowable limits;

f/ Imported foods which are notified by a competent authority of the exporting country or another country or an international organization to contain contaminants harmful to human health and life.

2. Recall of unsafe foods takes the following forms:

a/ Voluntary recall by food producers or traders themselves:

b/ Compulsory recall by food producers and traders at the request of competent state agencies.

3. Unsafe foods shall be disposed of through:

a/ Correction of product flaws or labeling errors:

b/ Change of use purposes;

c/ Re-ex port:

d/ Destruction.

4. Unsafe food producers and traders shall publish information on recalled products, recall and dispose of unsafe foods within the time limit decided by a competent state agency, and pay all recall and disposal expenses.

Past the prescribed time limit, food producers and traders that fail to recall foods shall be coerced to do so under law.

5. Competent state agencies shall:

a/ Based on the severity of violations of safety assurance conditions, decide on the recall and disposal of unsafe foods as well as the time limit for completing such recall and disposal;

b/ Inspect the recall of unsafe foods:

c/ Handle violations of the law on food safety according to their competence as defined by law:

d/ For food products which are likely to seriously affect the community health or in other emergency cases, directly recall and dispose of them and request their producers and traders to pay recall and disposal expenses.

6. The Minister of Health, the Minister of Agriculture and Rural Development and the Minister of Industry and Trade shall specify the recall and disposal of unsafe foods in their assigned management domains.

Chapter IX

INFORMATION, EDUCATION AND COMMUNICATION ON FOOD SAFETY

Article 56. Purposes and requirements of information, education and communication on food safety

1. Information, education and communication on food safety aims to raise public awareness about food safety, and change backward behaviors, customs and practices in production, trading and living which cause food unsafely, contributing to protecting human health and life; and about business ethics and responsibility of food producers and traders towards consumer health and life.

2. Information, education and communication on food safety must be:

a/ Accurate, prompt, explicit, simple and practical;

b/ Suitable to the nation's traditions, culture and identity, religions, social ethics, beliefs, customs and practices;

c/ Suitable to each category of targeted subjects.

Article 57. Contents of information, education and communication on food safety

1. Providing, propagating and disseminating knowledge and law on food safety.

2. Providing information on causes and ways of identifying food poisoning risks, food-borne diseases and measures to prevent and remedy food safety incidents.

3. Providing information on exemplary models of safe food production or trading; recall of unsafe foods, and handling of establishments that seriously violate the law on food safety.

Article 58. Entities eligible to access information, education and communication on food safety

1. All organizations and individuals have the right to access information, education and communication on food safety.

2. Priority will be given to the following entities in accessing information, education and communication on food safety:

a/ Food consumers;

b/ Managers and executive officers of food production or trading establishments; food producers and traders;

c/ Fresh and raw food producers and traders and small-scale food producers and traders; inhabitants in extreme socio-economic difficulty-hit areas.

Article 59. Forms of information, education and communication on food safety

1. Through competent state agencies in charge of food safety.

2. In the mass media.

3. Integration in teaching and learning activities at educational institutions of the national education system.

4. Through cultural and community activities and activities of mass organizations and social organizations, and other forms of public cultural activities.

5. Through food safety-related inquiry points at line ministries.

Article 60. Responsibilities in information, education and communication on food safety

1. Agencies, organizations and units shall, within the ambit of their tasks and powers, conduct information, education and communication on food safety.

2. The Minister of Health, line ministers and heads of concerned ministerial-level agencies shall direct concerned agencies in providing accurate and scientific information on food safety; and promptly give responses to untruthful information on food safety.

3. The Minister of Information and Communications shall direct mass media agencies in regularly providing information and communication on food safety and integrating programs on information and communication on food safety into other information and communication programs.

4. The Minister of Education and Training shall assume the prime responsibility for, and coordinate with the Minister of Health, line ministers and heads of concerned ministerial-level agencies in. combining education about food safety with other educational contents.

5. People's Committees at all levels shall organize the provision of information, education and communication on food safety to local people.

6. Mass media agencies shall prioritize in terms of schedule and length of broadcasts to provide information, education and communication on food safety on radios and televisions: and reserve appropriate spaces for articles and broadcasts on food safety in printed newspapers, televisions or online newspapers under regulations of the Minister of Information and Communications. Information, education and communication on food safety in the mass media is free of charge, unless it is provided under separate contracts with programs or projects or financed by domestic or foreign organizations or individuals.

7. The Vietnam Fatherland Front, mass organizations and social organizations shall, within the ambit of their responsibilities, conduct the work of information, education and communication on food safety.

Chapter X

STATE MANAGEMENT OF FOOD SAFETY

Section I. RESPONSIBILITIES FOR STATE MANAGEMENT OF FOOD SAFETY

Article 61. Responsibilities for state management of food safety

1. The Government shall perform the unified state management of food safety.

2. The Ministry of Health is answerable to the Government for performing the state management of food safety.

3. Ministries and ministerial-level agencies shall, within the ambit of their respective tasks and powers, coordinate with the Ministry of Health in performing the stale management of food safety.

4. People's Committees at all levels shall perform the sate management of food safety in their respective localities-

Article 62. Responsibilities of the Ministry of Health for state management of food safety

1. General responsibilities:

a/ To assume the prime responsibility for formulating and submitting national strategies and master plans on food safety to competent state agencies for promulgation, and organize the implementation thereof

b/ To promulgate national technical regulations on safety criteria and limits on food products; food-packaging tools and food packages and containers.

c/ To request ministries, sectors and provincial-level People's Committees to make regular and irregular reports on food safety management;

d/ To prescribe general conditions on food safety assurance for food producers and traders;

e/ To assume the prime responsibility for organizing the propagation and education about the taw on food safety: to warn food poisoning incidents.

f/ To unexpectedly inspect and examine all stages in the process of food production, import and trading under the scope of management of other ministries when necessary.

2. Responsibilities in sectoral management:

a/ To assume the prime responsibility for formulating and promulgating or submitting strategies, policies, master plans, plans and legal documents on food safety to competent state agencies for promulgation, and organize the implementation thereof in its assigned management domain;

b/ To manage food safety throughout the process of production, preliminary processing, processing, preservation, transportation, export, import and trading of food additives, food processing aids, bottled drinking water, natural mineral water, functional food and other foods under the Government's regulations:

c/ To manage food safety with regard to food-packaging tools and food packages and containers in the process of food production, processing and trading in its assigned management domain;

d/ To inspect, examine, and handle violations of the law on food safety in the process of food production, export, import and trading in its assigned management domains.

Article 63. Responsibilities of the Ministry of Agriculture and Rural Development

1. To assume the prime responsibility for formulating and promulgating or submitting policies, strategies, master plans, plans and legal documents on food safety in its assigned management domain to competent state agencies for promulgation, and organize the implementation thereof.

2. To manage food safely in the primary production of agricultural, forest, aquatic and salt products.

3. To manage food safety throughout the process of production, collection, slaughter, preliminary processing, processing, preservation. transportation, import, export and trading of cereals, meat and products thereof, aquatic animals and products thereof, vegetables, tubers and fruits and products thereof, eggs and products thereof, fresh milk, honey and products thereof, genetically modified food, salt and other farm products under the Government's regulations.

4. To manage food safety with regard to food-packaging tools and food packages and containers in the process of food production, processing and trading in its assigned management domain.

5. To make regular and irregular reports on the management of food safety in its assigned management domain.

6. To inspect, examine, and handle violations of the law on food safety in the process of food production, export, import and trading in its assigned management domain.

Article 64. Responsibilities of the Ministry of Industry and Trade

1. To assume the prime responsibility for formulating, promulgating or submitting policies, strategies, master plans, plans and legal documents on food safety in its assigned management domain to competent stale agencies for promulgation and organize the implementation thereof.

2. To manage food safety in the process of production, processing, preservation, transportation, import, export and trading of liquor, beer, beverage, processed milk, vegetable oil, powder and starch processed products and other products under the Government's regulations.

3. To manage food safety with regard to food-packaging tools and food packages and containers in the process of food production, processing and trading in its assigned management domain.

4. To promulgate policies and master plans on markets and supermarkets and regulations on food trading at markets and supermarkets.

5. To assume the prime responsibility for preventing and controlling fake food, and trade fraud in food circulation and trading.

6. To make regular and irregular reports on the management of food safety in its assigned management domain.

7. To inspect, examine, and handle violations of the law on food safety in the process of food production, import, export, and trading in its assigned management domain.

Article 65. State management responsibilities of People's Committees at all levels

1. To promulgate according to their competence or submit local legal documents and technical regulations to competent state agencies for promulgation; to formulate and implement master plans on safe food production zones and establishments so as to ensure management in the entire food supply chain.

2. To be responsible for managing food safety in their respective localities: to manage food safety assurance conditions for small-scale food production and trading establishments, street food, catering establishments, and food safety at local markets and subjects in their assigned management domain.

3. To make regular and irregular reports on the management of food safety in their respective localities.

4. To arrange human resources, train and improve qualifications of human resources for the work of food safety assurance in their respective localities.

5. To organize the work of information, education and communication to raise awareness about food safety, the sense of observing the law on food safety management, the sense of responsibility of food producers and traders toward the community and the awareness of consumers about food safety.

6. To inspect, examine and handle violations of the law on food safety in their respective localities.

Section 2. FOOD SAFETY INSPECTION

Article 66. Food safety inspection

1. Food safety inspection is specialized inspection. Food safety inspection shall be conducted by the health; agriculture and rural development; and industry and trade sectors under the law on inspection.

2. The Government shall specify the coordination among food safety inspectorates of ministries and ministerial-level agencies with other forces in ensuring food safety.

Article 67, Contents of food safety inspection

1. Compliance with technical standards and regulations on food safety applicable to food production and trading and food products promulgated by competent state agencies.

2. Compliance with relevant food safety standards announced by food producers for application to food production and trading and food products.

3. Advertising and labeling of food within the scope of management.

4. Regulation conformity certification and food safety testing.

5. Compliance with other legal provisions on food safety.

Section 3. FOOD SAFETY EXAMINATION

Article 68. Responsibilities for food safety examination

1. Food safety management agencies under line ministries shall conduct food safety examination in food production and trading under Articles 61 thru 64 of this Law.

2. Food safety management agencies under provincial-level People's Committees shall conduct food safety examination in their respective localities under regulations of line ministries and the assignment by provincial-level People's Committees.

3. In case an inter-sector examination of food safety is related to the management scopes of many sectors or localities, the agency in charge of the examination shall coordinate with concerned agencies under related ministries, ministerial-level agencies and provincial-level People's Committees in conducting the examination.

4. Food safety examination must ensure the following principles:

a/ Objectivity, accuracy, publicity, transparency and non-discrimination.

b/ Keeping confidential information, documents and results of examination related to inspected agencies and food producers and traders pending the availability of official conclusions;

c/ Causing no troubles to food producers and traders.

d/ Taking responsibility before law for relevant examination results and conclusions.

5. Line ministers shall specify food safety examination activities in their assigned management domains.

Article 69. Powers and tasks of food safety management agencies in food safety examination

I. Within the ambit of their respective tasks and powers, food safety management agencies have following powers in food safety examination:

a/ To decide to form examination teams to conduct planned or unexpected examinations.

b/ To warn food unsafely risks:

c/ To handle violations in the course of examination under Articles 30, 36 and 40 of the Law on Product and Goods Quality:

d/ To settle complaints and denunciations about decisions of examination teams, and acts of inspection team members under the Law on complaints and denunciations.

2. The food safety management agencies, within the ambit of their tasks and powers, have the following tasks:

a/ To draw up annual examination plans and submit them to competent state agencies for decision;

b/ To receive registration dossiers of registration for testing of the safety of imported food: to certify food safety assurance conditions for imported food;

c/ To issue handling decisions within 3 working days from the date of receiving reports of inspection teams regarding suspending food production, and trading activities, scaling up food and suspending advertisement of unsafe food.

Article 70. Examination team

1. An examination team shall be formed under a decision of the head of a food safety management agency on the basis of an examination program or plan approved by a competent state agency or in case of unexpected examination.

2. In the course of food safety examination, examination teams has the following powers and tasks:

a/ To request food producers and traders to present related documents, and handle violations in the course of examination under Articles 30 and 40 of the Law on Products and Goods Quality, to supply copies of the documents mentioned in this Clause, when necessary;

b/ To take samples for testing when necessary;

c/ To seal food, suspend the sale of unsuitable food, suspend food advertisements containing improper contents in the course of market examination and report to the food safety management agency within 24 hours after so doing:

d/ To request organizations and individuals producing and trading in food which is unconformable with announced applicable standards, technical regulations and regulations or relevant conditions to take remedies;

e/ To propose the food safety management agency to handle violations according to its competence specified in Article 69 of this Law;

f/ To ensure the examination principles provided in Clause 4. Article 68 of this Law during examination;

g/ To accurately and timely report examination results to the food safety management agency.

Chapter XI

IMPLEMENTATION PROVISIONS

Article 71. Effect

This Law takes effect on July 1., 2011.

The Ordinance No. 12/2003/PL-UBTVQH11 on Food Hygiene and Safety ceases to be effective on the effective date of this Law.

Article 72. Implementation detailing and guidance

The Government shall detail and guide the implementation of articles and clauses as assigned in this Law; and guide other necessary provisions of this Law to meet state management requirements.

This Law was passed on June 17, 2010, by the XIVth National Assembly of the Socialist Republic of Vietnam at its 7th session. –

CHAIRMAN OF THE NATIONAL ASSEMBLY

Nguyen Phu Trong

② QCVN 8-3/2012/BYT_＜CIRCULAR_No.05/2012/TT-BYT＞ :

食品中の微生物に係る技術規制

THE MINISTRY OF HEALTH

THE SOCIALIST REPUBLIC OF VIETNAM
Independence- Freedom - Happiness

No. 05/2012/TT-BYT

Hanoi, March 01, 2012

CIRCULAR

PROMULGATING THE NATIONAL TECHNICAL REGULATIONS ON MICROBIOLOGICAL CONTAMINANTS IN FOOD

Pursuant to the Law of Food safety of June 17, 2010;

Pursuant to the Law on Technical regulations and standards of June 29, 2006 and the Government's Decree No. 127/2007/ND-CP of August 01, 2007 on detailing the implementation of a number of articles of the Law on Technical regulations and standards;

Pursuant to the Government's Decree No. 188/2007/ND-CP of December 27, 2007 on defining the functions, tasks, powers and organizational structure of the Ministry of Health;

At the proposal of the Director of the Department food safety and hygiene, the Director of the Department of Science and training, the Director of the Legal Department,

PRESCRIBES:

Article 1.

Promulgating together with this Circular the National Technical Regulation on microbiological contaminants in food.

Article 2. This Circular takes effect on September 01, 2012.

Article 3. The Director of the Department food safety and hygiene, the Heads of units belonging and affiliated to the Ministry of Health, the director of the

Department of Health in central-affiliated cities and provinces, relevant organizations and individuals are responsible to implement this Circular./.

FOR THE MINISTER
DEPUTY MINISTER

Nguyen Thanh Long

QCVN 8-3: 2012/BYT

NATIONAL TECHNICAL REGULATION

National technical regulation on Microbiological contaminants in food

FOREWORD

QCVN No. 8-3:2012/BYT compiled by the Drafting Board National technical regulation on chemical and biological contamination, submitted be the Department food safety and hygiene and promulgated under the Circular No. 05/2012/TT-BYT of March 01, 2012 by The Minister of Health.

NATIONAL TECHNICAL REGULATION

National technical regulation of Microbiological contaminants in food

I. GENERAL PROVISIONS

1. Scope of regulation

This Regulation prescribes the limits of microbiological contamination in food regarding the following kinds food or group of food: milk and diary, eggs, and products from eggs, meat and products from meat, aquacultural products, nutrition products for kids from 0 – 36 months old; bottled natural water, bottled water and instant-use

ice; cream, vegetables and fruits, products from vegetables and fruits (hereinafter referred to as food) and the relevant management requirements.

2. Subjects of application

This Regulation is applicable to:

2.1. Organizations, individuals exporting, importing and trading the kinds of food prescribed in Clause 1.

2.2. Relevant State management agencies.

3. Interpretation of terms and abbreviations

The terms and abbreviations in this Regulation are construed as follows:

3.1. Limits of microbiological contamination in food is the maximum limits of microorganisms allowed in the food

3.2. Norm rating

Norm A: is the norm required to be tested during the conformity assessment.

Norm B: is the norm not being required to be tested during the conformity assessment if the producers already take risk control measures in the production (HACCP or GMP). If the producer omits to take risk control measures, these norms are compelled to be tested.

3.3. Abbreviations

– n: the number of samples from the consignments to be tested.

– c: the maximum amount of samples of which the test results are allowed to lie between m and M. For n samples tested, only c samples are allowed to have the test results lie between m and M.

– m: lower limit, it is considered passed if all the test results of n samples do not exceed m.

– M: upper limit, it is considered failed if only one test result of n samples exceeds M.

– TSVSVHK: the total amount of aerobic microorganisms

– KPH: not detected

II. TECHNICAL PROVISIONS

1. Limits of microbiological contamination in milk and dairy

No.	Product	Norm	Sampling plan		Allowed limit (CFU/ml or CFU/g)		Norm rating
			n	c	m	M	
1.1	Liquid dairy	Enterobacteriaceae	5	2	< 1	5	A
		L. monocytogens(1)	5	0	10^2		A
1.2	Powdered dairy	Enterobacteriaceae	5	0	10^1		A
		Staphylococci positive for coa gulase	5	2	10^1	10^2	A
		Staphylococcal enterotoxin	5	0	KPH (2)		B
		L. monocytogens(1)	5	0	10^2		A
		Salmonella	5	0	KPH (2)		A
1.3	Cheese						
1.3.1	Cheese from raw milk	Staphylococci positive for coagulase	5	2	10^4	10^5	A
		Staphylococcal enterotoxin	5	0	KPH(2)		B
		L. monocytogens(1)	5	0	10^2		A
		Salmonella	5	0	KPH(2)		A
1.3.2	Cheese from thermo-processed milk	E. coli	5	2	10^2	10^3	A
		Staphylococci positive for coagulase	5	2	10^2	10^3	A
		Staphylococcal enterotoxin	5	0	KPH(2)		B
		L. monocytogens(1)	5	0	10^2		A
		Salmonella	5	0	KPH (2)		A

1.3.3	Whey Cheese (From thermo-processed whey)	E. coli	5	2	10^2	10^3	A
		Staphylococci dương tính với coagulase	5	2	10^2	10^3	A
		Nội Độc tố của Staphylococcus(Staphylococcal enterotoxin)	5	0	KPH(2)		B
		L. monocytogens(1)	5	0	10^2		A
1.3.4	Fresh cheese from milk or whey(thermo-processed milk or whey)	Staphylococci positive for coagulase	5	2	10^1	10^2	A
		Staphylococcal enterotoxin	5	0	KPH(2)		B
		L. monocytogens(1)	5	0	10^2		A
	Other products from cheese	L. monocytogens(1)	5	0	10^2		A
1.4	Fat products from milk						
1.4.1	Cream and butter	E. coli	5	2	10^1	10^2	A
		L. monocytogens(1)	5	0	10^2		A
		Salmonella	5	0	KPH (2)		A
1.4.2	Milk fat, butter, dehydrated milk fat, dehydrated butter and vicous milk fat	L. monocytogens(1)	5	0	10^2		A
1.5	Fermented dairy						
1.5.1	Thermo-processed fermented dairy	Enterobacteriaceae	5	2	< 1	5	A
		L. monocytogens(1)	5	0	10^2		A
1.5.2	Fermented dairy not being thermo-processed	L. monocytogens(1)	5	0	10^2		A

Notes:

(1) for instant-use products

(2) in 25g or 25ml

2. Limits of microbiological contamination in eggs and products from eggs

No.	Product	Norm	Sampling plan		Allowed limit (CFU/ml or CFU/g)		Norm rating
			n	c	m	M	
2.1	Products from eggs	Enterobacteriaceae	5	2	10^1	10^2	B
		Salmonella	5	0	KPH (2)		A

3. Limits of microbiological contamination in meat and products from meat

No.	Products	Norm	Sampling plan		Allowed limit (CFU/g)		Norm rating
			n	c	m	M	
3.1	Instant-use meat and products from meat without thermo-processing	TSVSVHK	5	2	$5x10^5$	$5x10^6$	B
		E. coli	5	2	$5x10^1$	$5x10^2$	B
		Salmonella	5	0	KPH(2)		A
3.2	Meat and products from meat needing thermo-processing before use	TSVSVHK	5	2	$5x10^5$	$5x10^6$	B
		E. coli	5	2	$5x10^2$	$5x10^3$	B
		Salmonella	5	0	KPH (2)		A
3.3	Gelatine và collagen	Salmonella	5	0	KPH (2)		A

4. Limits of microbiological contamination in aquacultural product

No.	Product	Norm	Sampling plan		Allowed limit (CFU/g)		Norm rating
			n	c	m	M	
4.1	Alive bivalve mollusc, gastropods, echinoderms, tunicates	*E. coli*	1	0	230(3)	700(3)	B
		Salmonella	5	0	KPH(2)		A
4.2	Shelled mollusc and	E. coli	5	2	1	10^1	B

	crustacean or unshelled, heated mollusc and crustacean	Staphylococci positive for coagulase	5	2	10^2	10^3	B
		Salmonella	5	0	KPH (2)		A

Note:

(2) in 25g or 25ml

(3) MPN/100g meat và endolymph

5. Limits of microbiological contamination in nutrition products for 0 – 36 months old kids

No.	Product	Norm	Sampling plan		Allowed limit (CFU/g)		Norm rating
			n	c	m	M	
5.1	Powdered nutrition products for kids up to 12 months old	Salmonella	30	0	KPH (2)		A
		Enterobacter sakazakii	30	0	KPH(4)		A
		Enterobacteriaceae	10	0	KPH (4)		B
		Bacillus cereus giả Dịnh	5	1	$5x10^1$	$5x10^2$	B
5.2	Special medical-use nutrition products for for kids up to 12 months old	Salmonella	30	0	KPH (2)		A
		Enterobacter sakazakii	30	0	KPH(4)		A
		Enterobacteriaceae	10	0	KPH (4)		B
		Assumed Bacillus cereus	5	1	$5x10^1$	$5x10^2$	B
5.3	Nutrition products for supplementary feeding for kids from 6 to 36 months old	Enterobacteriaceae	5	0	KPH (4)		B
		Salmonella	30	0	KPH (2)		A
5.4	Food from cereals for kids from 6 to 36 months old	Coliform	5	2	< 3	20	A
		Salmonella	10	0	KPH (2)		A

Note:

(2) in 25g or 25ml

(4) in 10g or 10ml

6. Limits of microbiological contamination in vegetables and fruit, products from vegetables and fruits

No.	Product	Norm	Sampling plan		Allowed limit (CFU/g)		Norm rating
			n	c	m	M	
6.1	Sprout vegetable (for instant-use without thermo-processing)	Salmonella	5	0	KPH (2)		A
6.2	Raw vegetables	E. coli	5	2	10^2	10^3	B
		Salmonella	5	0	KPH (2)		A
6.3	Instant-use fruits	E. coli	5	2	10^2	10^3	B
		Salmonella	5	0	KPH (2)		A

7. Limits of microbiological contamination in cream

No.	Product	Norm	Sampling plan		Allowed limit (CFU/ml or CFU/g)		Norm rating
			n	c	m	M	
7.1	Cream (for cream that contains milk)	Enterobacteriaceae	5	2	10^1	10^2	B
		Salmonella	5	0	KPH (2)		A

Note: *(2) in 25g or 25ml*

8. Limits of microbiological contamination in bottle natural water, bottled water and instant-use ice

8.1. First test				
No.	Norm	Sample amount (ml)	Requirement	Norm rating
8.1.1	Heat-resistant E. coli or coliform	1 x 250	KPH	A
8.1.2	Total Coliform	1 x 250	Under go seconde test	A

8.1.3	Streptococci fecal	1 x 250	if the number of bacteria (spores) ≥ 1 and ≤ 2 Eliminate if the number of bacteria (spores) > 2	A
8.1.4	Pseudomonas aeruginosa	1 x 250		A
8.1.5	Spore of anti-sulfite anaerobic bacteria	1 x 50		A

8.2. Second test

No.	Norm	Sampling plan		Allowed limit (CFU/ml)		Norm rating
		n	c	m	M	
8.2.1	Total Coliform	4	1	0	2	A
8.2.2	Streptococci fecal	4	1	0	2	A
8.2.3	Pseudomonas aeruginosa	4	1	0	2	A
8.2.4	Spore of anti-sulfite anaerobic bacteria	4	1	0	2	A

III. METHOD OF SAMPLING AND TESTING

1. Sampling

Sampling as guided in the Circular No. 16/2009/TT-BKHCN of June 02, 2009 of the Ministry of Science and Technology on the State inspection of circulating goods quality and other relevant law provisions.

2. Test methods

The technical requirements in this Regulation shall be tested using the following methods (these methods are not compulsory, it is possible to use other equivalent methods):

- TCVN 4884: 2005 (ISO 4833:2003) Microorganisms in food and breeding feed - Method of enumerating microorganisms on agar plates - Colony counting technique at 30° C.

- TCVN 4829: (ISO 6579: 2002) Microorganisms in food and breeding feed – Method of detecting Salmonella on agar plates.

- TCVN 7924-1: 2008 (ISO 16649 -1: 2001) Microorganisms in food and breeding feed – Method of enumerating positive Escherichia coli β- glucuronideaza, Part 1: Colony counting technique at 44° C using filter membrane and 5-bromo-4-chloro-3-indolyl β-D-glucuronide.

- TCVN 7924-2: 2008 (ISO 16649 -2: 2001) Microorganisms in food and breeding feed – Method of enumerating positive Escherichia coli β- glucuronideaza, Part 2: Colony counting technique at 44° C using 5- bromo-4-chloro-3-indolyl β -D-glucuronide.

- TCVN 7924-3: 2008 (ISO 16649 -3: 2001) Microorganisms in food and breeding feed – Method of enumerating positive Escherichia coli β- glucuronideaza, Part 3: Most probable number method using 5- bromo-4-chloro-3-indolyl β -D-glucuronide

- TCVN 7700-2: 2007 (ISO 11290-2:1998, With amd 1: 2004) Microorganisms in food and breeding feed – Methods of detecting and enumerating Listeria monocytogenes, Part 2: Quantitative method.

- TCVN 4830-1:2005 (ISO 6888-1:1999, with Amd, 1:2003) Microorganisms in food and breeding feed – Methods of enumerating Staphylococci positive for coagulase (Staphylococcus aureus and other kinds) on agar plates, Part 1: Using Baird-Parker environment.

- TCVN 4830-2:2005 (ISO 6888-2:1999, with Amd, 1:2003) Microorganisms in food and breeding feed – Methods of enumerating Staphylococci positive for coagulase (Staphylococcus aureus and other kinds) on agar plates, Part 2: Using fibrinogen agar environment from rabbit serum.

- TCVN 4830-3:2005 (ISO 6888-3: 2003) Microorganisms in food and breeding feed – Methods of enumerating Staphylococci positive for coagulase (Staphylococcus aureus and other kinds) on agar plates, Part 3: Detecting and using Most probable number method (MPN) to count small quantities.

- TCVN 6191-2:1996 (ISO 6461-2:1986) Water quality – Detecting and counting spores of anti-sulfite anaerobic bacteria (Clostridia), Part 2: Filter membrane method

– TCVN 4882:2007 (ISO 4831: 2006) Microorganisms in food and breeding feed – Methods of enumerating coliforms – Most probable number method.

– TCVN 6848:2007 (ISO 4832: 2006) Microorganisms in food and breeding feed – Methods of enumerating coliforms – Colony counting method.

– TCVN 5518–1:2007 (ISO 21528–1: 2004) Microorganisms in food and breeding feed – Method of detecting and enumerating Enterobactericeae, Part 1: Detecting and enumerating using MPN with pre–proliferation.

– TCVN 7850–2008 (ISO/TS 22964:2006) Microorganisms in food and breeding feed – Method of detecting and enumerating Enterobacter sakazakii.

– ISO 16266:2006 Water quality – Detection and enumeration of Pseudomonas aeruginosa – Method by membrane filtration – ISO 7899–2:2000 Water quality – Detection and enumeration of intestinal enterococci, Part 2: Membrane filtration method.

IV. PROVISIONS ON MANAGEMENT

The food prescribed in Section II must undergo quality and safety inspections in order to ensure that the microbiological contamination does not exceed the limits prescribed in this Regulation.

The food prescribed in the "Regulation on maximum limit of biological and chemical contamination in food" promulgated together with the Decision No. 46/2007/QD–BYT of December 19, 2007 of the Ministry of Health not being regulated in the regulation shall continue to apply the Decision No. 46/2007/QD–BYT.

V. RESPONSIBILITIES OF ORGANIZATIONS AND INDIVIDUALS

Organizations and individuals are only allowed to produce, trade, export and import the food conformable with the limits of microbiological contamination prescribed in this Regulation.

VI. Organizing the implementation

1. The the Department food safety and hygiene shall cooperate with relevant functional agencies to guide and organize the implementation of this Regulation.

2. Depending on the management requirement, the Department food safety and hygiene shall submit proposal to the Ministry of Health to amend and supplement this Regulation.

3. In case the standards and law provisions being cited in this Regulation are changed, supplemented or superseded, the new documents shall apply./.

③ QCVN 01:2009/BYT: 残留塩素の濃度を規定した規格

Preface:

QCVN 01: 2009/BYT is compiled by Department of Preventive Medicine & Environment and promulgated by MOH's Minister at the Circular No.04/2009/TT-BYT dated 17th June 2009.

NATIONAL TECHNICAL REGULATION ON THE DRINKING WATER QUALITY

PART I. GENERAL RULES

I. Applicable scope

This Technical Regulation stipulates limits of quality criteria for water used for drinking and processing food (hereinafter called drinking water).

Ⅱ Applicable subject

This Technical Regulation applies to institutions, organizations, individuals and households who exploit, trade drinking water, including piped water providers for domestic purposes with capacity of 1,000 m^3/day or above (hereafter called water providers).

Ⅲ Explanation of words/phrases

In this Regulation, following words/phrases will be thoroughly understood as:

1. Perceptible criteria are elements on color and taste which are felt by human senses.

2. AOAC stands for *Association of Official Analytical Chemists*.

3. SMEWW stands for *Standard Methods for the Examination of Water and Waste Water*.

4. US EPA stands for *United States Environmental Protection Agency*.

5. TCU stands for *True Color Unit*.

6. NTU stands for *Nephelometric Turbidity Unit*.

7. pCi/l stands for *Picocuri per litre*.

PART II. STIPULATIONS ON TECHNICAL AREAS

Table on the limits of quality parameters:

Or.	Parameter	Unit	Maximum limit	Testing method	Examination Level
I. Perceptible parameters and inorganic constituents					
1.	Color (*)	TCU	15	TCVN 6185 - 1996 (ISO 7887 - 1985) or	A

				SMEWW 2120	
2.	Taste and odour (*)	-	No strange taste & odour	Perceptible, or SMEWW 2150 B and 2160 B	A
3.	Turbidity (*)	NTU	2	TCVN 6184 - 1996 (ISO 7027 - 1990) or SMEWW 2130 B	A
4.	pH(*)	-	Within 6,5-8,5	TCVN 6492:1999 or SMEWW 4500 - H^+	A
5.	Hardness, calculated by $CaCO_3$ (*)	mg/l	300	TCVN 6224 - 1996 or SMEWW 2340 C	A
6.	Total Dissolved Solid (TDS) (*)	mg/l	1000	SMEWW 2540 C	B
7.	Aluminum(*)	mg/l	0,2	TCVN 6657 : 2000 (ISO 12020 :1997)	B
8.	Ammoniac(*)	mg/l	3	SMEWW 4500 - NH_3 C or SMEWW 4500 - NH_3 D	B
9.	Antimony	mg/l	0,005	US EPA 200.7	C
10.	Total Arsenic	mg/l	0,01	TCVN 6626:2000 or SMEWW 3500 - As B	B
11.	Barium	mg/l	0,7	US EPA 200.7	C
12.	Boron and boric acid	mg/l	0,3	TCVN 6635: 2000 (ISO 9390: 1990) or SMEWW 3500 B	C
13.	Cadmium	mg/l	0,003	TCVN6197 - 1996 (ISO 5961 - 1994) or SMEWW 3500 Cd	C
14.	Chloride (*)	mg/l	250 300(**)	TCVN6194 - 1996 (ISO 9297 - 1989) or SMEWW 4500 - Cl^- D	A
15.	Total Chromium	mg/l	0,05	TCVN 6222 - 1996 (ISO 9174 - 1990) or SMEWW 3500 - Cr^-	C
16.	Total Copper (*)	mg/l	1	TCVN 6193 - 1996 (ISO 8288 - 1986) or SMEWW 3500 - Cu	C
17.	Cyanide	mg/l	0,07	TCVN 6181 - 1996 (ISO 6703/1 - 1984) or SMEWW 4500 - CN^-	C
18.	Flouride	mg/l	1,5	TCVN 6195 - 1996 (ISO10359 - 1 - 1992) or SMEWW 4500 - F^-	B
19.	Hydrogen sulfide(*)	mg/l	0,05	SMEWW 4500 - S^{2-}	B

20.	Total Iron (Fe^{2+} + Fe^{3+})(*)	mg/l	0,3	TCVN 6177 - 1996 (ISO 6332 - 1988) or SMEWW 3500 - Fe	A
21.	Lead	mg/l	0,01	TCVN 6193 - 1996 (ISO 8286 - 1986) SMEWW 3500 - Pb A	B
22.	Total Manganese	mg/l	0,3	TCVN 6002 - 1995 (ISO 6333 - 1986)	A
23.	Total Mercury	mg/l	0,001	TCVN 5991 - 1995 (ISO 5666/1-1983 - ISO 5666/3 -1983)	B
24.	Molybdenum	mg/l	0,07	US EPA 200.7	C
25.	Nickel	mg/l	0,02	TCVN 6180 -1996 (ISO8288 -1986) SMEWW 3500 - Ni	C
26.	Nitrate	mg/l	50	TCVN 6180 - 1996 (ISO 7890 -1988)	A
27.	Nitrite	mg/l	3	TCVN 6178 - 1996 (ISO 6777-1984)	A
28.	Selenium	mg/l	0,01	TCVN 6183-1996 (ISO 9964-1-1993)	C
29.	Sodium	mg/l	200	TCVN 6196 - 1996 (ISO 9964/1 - 1993)	B
30.	Sulfate (*)	mg/l	250	TCVN 6200 - 1996 (ISO9280 - 1990)	A
31.	Zinc (*)	mg/l	3	TCVN 6193 - 1996 (ISO8288 - 1989)	C
32.	Permanganate	mg/l	2	TCVN 6186:1996 or ISO 8467:1993 (E)	A
II. Content of organic substances					
***a.* Chlorinated alkenes**					
33.	Carbon tetrachloride	µg/l	2	US EPA 524.2	C
34.	Dichloromethane	µg/l	20	US EPA 524.2	C
35.	1,2 Dichloroethane	µg/l	30	US EPA 524.2	C
36.	1,1,1 - Trichloroethane	µg/l	2000	US EPA 524.2	C
37.	Vinyl chloride	µg/l	5	US EPA 524.2	C
38.	1,2 Dichloroethene	µg/l	50	US EPA 524.2	C
39.	Trichloroethene	µg/l	70	US EPA 524.2	C
40.	Tetrachloroethene	µg/l	40	US EPA 524.2	C
***b.* Aromatic hydrocarbons**					
41.	Phenol and derivatives of Phenol	µg/l	1	SMEWW 6420 B	B
42.	Benzene	µg/l	10	US EPA 524.2	B

43.	Toluene	µg/l	700	US EPA 524.2	C
44.	Xylenes	µg/l	500	US EPA 524.2	C
45.	Ethyl benzene	µg/l	300	US EPA 524.2	C
46.	Styrene	µg/l	20	US EPA 524.2	C
47.	Benzo(a)pyrene	µg/l	0,7	US EPA 524.2	B
c. Chlorinated benzenes					
48.	Monochlorobenzens	µg/l	300	US EPA 524.2	B
49.	1,2- Dichlorobenzene	µg/l	1000	US EPA 524.2	C
50.	1,4- Dichlorobenzene	µg/l	300	US EPA 524.2	C
51.	Trichlorobenzene	µg/l	20	US EPA 524.2	C
d. Groups of complex organic substances					
52.	Di(2-etylhexyl) adipate	µg/l	80	US EPA 525.2	C
53.	Di(2-etyhlexyl) phtalat	µg/l	8	US EPA 525.2	C
54.	Acrylamide	µg/l	0,5	US EPA 8032A	C
55.	Epiclohydrin	µg/l	0,4	US EPA 8260A	C
56.	Hexacloro butadiene	µg/l	0,6	US EPA 524.2	C
III. Pesticides					
57.	Alachlor	µg/l	20	US EPA 525.2	C
58.	Aldicarb	µg/l	10	US EPA 531.2	C
59.	Aldrin/Dieldrin	µg/l	0,03	US EPA 525.2	C
60.	Atrazine	µg/l	2	US EPA 525.2	C
61.	Bentazone	µg/l	30	US EPA 515.4	C
62.	Carbofuran	µg/l	5	US EPA 531.2	C
63.	Chlordane	µg/l	0,2	US EPA 525.2	C
64.	Chlorotoluron	µg/l	30	US EPA 525.2	C
65.	DDT	µg/l	2	SMEWW 6410B, or SMEWW 6630 C	C
66.	1,2 - Dibromo - 3 Chloropropane	µg/l	1	US EPA 524.2	C
67.	2,4 - D	µg/l	30	US EPA 515.4	C
68.	1,2 - Dichloropropane	µg/l	20	US EPA 524.2	C
69.	1,3 - Dichloropropene	µg/l	20	US EPA 524.2	C
70.	Heptachlor & heptachlor epoxide	µg/l	0,03	SMEWW 6440C	C
71.	Hexachlorobenzene	µg/l	1	US EPA 8270 - D	C
72.	Isoproturon	µg/l	9	US EPA 525.2	C
73.	Lindane	µg/l	2	US EPA 8270 - D	C

74.	MCPA	µg/l	2	US EPA 555	C
75.	Methoxychlor	µg/l	20	US EPA 525.2	C
76.	Methachlor	µg/l	10	US EPA 524.2	C
77.	Molinate	µg/l	6	US EPA 525.2	C
78.	Pendimetalin	µg/l	20	US EPA 507, US EPA 8091	C
79.	Pentaclorophenol	µg/l	9	US EPA 525.2	C
80.	Permethrin	µg/l	20	US EPA 1699	C
81.	Propanil	µg/l	20	US EPA 532	C
82.	Simazine	µg/l	20	US EPA 525.2	C
83.	Trifuralin	µg/l	20	US EPA 525.2	C
84.	2,4 DB	µg/l	90	US EPA 515.4	C
85.	Dichloprop	µg/l	100	US EPA 515.4	C
86.	Fenoprop	µg/l	9	US EPA 515.4	C
87.	Mecoprop	µg/l	10	US EPA 555	C
88.	2,4,5 - T	µg/l	9	US EPA 555	C
IV. Disinfectants and disinfectant by-products					
89.	Monochloramine	µg/l	3	SMEWW 4500 - Cl G	B
90.	Chlorine residue	mg/l	Within 0,3 - 0,5	SMEWW 4500Cl or US EPA 300.1	A
91.	Bromate	µg/l	25	US EPA 300.1	C
92.	Chlorite	µg/l	200	SMEWW 4500 Cl or US EPA 300.1	C
93.	2,4,6 Trichlorophenol	µg/l	200	SMEWW 6200 or US EPA 8270 - D	C
94.	Formaldehyde	µg/l	900	SMEWW 6252 or US EPA 556	C
95.	Bromoform	µg/l	100	SMEWW 6200 or US EPA 524.2	C
96.	Dibromchlorometane	µg/l	100	SMEWW 6200 or US EPA 524.2	C
97.	Bromodichlorometane	µg/l	60	SMEWW 6200 or US EPA 524.2	C
98.	Chloroform	µg/l	200	SMEWW 6200	C
99.	Dichloroacetic acid	µg/l	50	SMEWW 6251 or US EPA 552.2	C
100.	Tricloroacetic acid	µg/l	100	SMEWW 6251 or US EPA 552.2	C
101.	Chloral hydrate (trichloroacetaldehyde)	µg/l	10	SMEWW 6252 or US EPA 8260 - B	C
102.	Dichloroacetonitrile	µg/l	90	SMEWW 6251 or US EPA 551.1	C

103.	Dibromoacetonitrile	µg/l	100	SMEWW 6251 or US EPA 551.1	C
104.	Trichloroacetonitrile	µg/l	1	SMEWW 6251 or US EPA 551.1	C
105.	Cyano chlorite (as CN^-)	µg/l	70	SMEWW 4500J	C
V. Radioactive constituents					
106.	Gross α activity	pCi/l	3	SMEWW 7110 B	B
107.	Gross β activity	pCi/l	30	SMEWW 7110 B	B
VI. Micro-organism					
108.	Total Coliform	Bacterial/100 ml	0	TCVN 6187 - 1,2 :1996 (ISO 9308 - 1,2 - 1990) or SMEWW 9222	A
109.	E.coli or thermo-tolerant coliform	Bacterial/100 ml	0	TCVN6187 - 1,2 : 1996 (ISO 9308 - 1,2 - 1990) or SMEWW 9222	A

Note:

- (*) perceptible parameters.

- (**) Applicable to maritime areas and islands.

- Both Nitrate and Nitrite might possibly create Methaemoglobin. Thus, in case both substances exist in drinking water, then the concentration (C) of each substance in compared with maximum limit is not allowed to exceed 1 and is calculated by following formula :

$$\frac{C_{nitrate}}{\text{max limit of Nitrate}} + \frac{C_{nitrite}}{\text{max limit of Nitrite}} \leq 1$$

PART III.

FREQUENCY OF WATER QUALITY MONITORING/INSPECTION

I. Monitoring/inspection prior to the use of water sources

- Testing of all parameters under A, B, C levels to be carried out by water providers.

II Regular monitoring

1. For parameters under A level:

a) Test at least 01 time per week, to be done by water providers ;

b) Test, monitor and experiment at least 01 time per month by functional agencies.

2. For parameters under B level:

a) Test at least 01 time per 6 months, to be done by water providers;

b) Test, monitor and experiment at least 01 time per 6 months by functional agencies.

3. For parameters under C level:

a) Test at least 01 time per 2 years, to be done by water providers;

b) Test, monitor and experiment at least 01 time per 2 years by functional agencies

Ⅱ Unscheduled monitoring/inspection

4. Following circustances are required to have urgent monitoring/inspection:

a) The results of testing of water sources' hygiene or epicdemic investigations reveal that water sources have potentially risks to contamination.

b) Environmental incidents appeared, which might negatively impact to the hygienic quality of water sources;

c) Other specific requirements.

PART IV. IMPLEMENTATION ARRANGEMENTS

I. Responsibilities of water providers:

1. Ensure water quality and carry out the testing/monitoring as per stipulations in this Technical Regulation.

2. Subject to the testing, monitoring/inspection of functional agencies.

Ⅱ Responsibilities of provincial Department of Health

Provincial DOHs will be responsible to provide guidance,

inspection/monitoring on the compliance of this Technical Regulation of relevant organizations, institutions, individuals who involve in the process of exploitation, production and trading water for drinking purposes within the provincity/city.

Ⅲ Responsibilities of Ministry of Health

MOH will lead relevant agencies/institutions to provide guidance, inspection/monitoring on the compliance of this Technical Regulation.

Ⅳ In case of possible changes/supplementation or adjustment of stipulations in this Technical Regulation, the new/revised regulatory document issued by MOH's Minister will be followed.