Grains – Grading and classification – Paddy and milled rice
Foreword

The Philippine National Standard (PNS) for Grains – Grading and classification – Paddy and milled rice was developed by the Bureau of Agriculture and Fisheries Standards (BAFS) as per the request of the National Food Authority (NFA). A Technical Working Group (TWG) for the development of the Standard has been created as per Department of Agriculture Special Order No. 793 Series of 2017 and No. 555 Series of 2018. This Standard has been approved by the Secretary of the Department of Agriculture 2019.

This Standard is an adaption of the Primer on the Philippine Grains Standardization Program (PGSP), Rev. 2002 developed by the NFA and its cooperators (farmers, millers, traders/retailers, National Government Agencies, Local Government Units, and other private Organizations) for the continuing advocacy, enforcement, and or monitoring activities on PGSP among their respective constituencies or sectors.

This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2.
Introduction

As the Philippines faces the challenges and opportunities of globalization in the 21st century, characterized among others, by technological disruptions as well as rising public expectations and consumer preferences for quality products and services, grains standardization is undoubtedly one of the key strategies for accelerating the modernization and enhancing the global competitiveness of agriculture sector.

The National Food Authority (NFA), by virtue of Presidential Decree (P.D.) No. 4 issued 26 September 1972, as amended by PD 1770, is mandated to promote the integrated growth and development of the grains industry, including the formulation and enforcement of the national grains standards in collaboration with various sectors. The implementation of the Rice Trade Liberalization Act (R.A. 11203) which, among others, lifted the quantitative restriction in rice import, repealed the regulatory powers of the NFA and transferred its food safety functions to the Bureau of Plant Industry, along with the Consumers Act of the Philippines (R.A. 7394) and the Food Safety Act of 2013 (R.A. 10611) underscore the need for an orchestrated multi-sectoral effort to promote and observe quality standards among stakeholders in the rice value chain. This is also in line with the country’s deregulation and trade liberalization policies as a member of the World Trade Organization (WTO).

The adoption of a revised standards for paddy, milled rice and corn as a Philippine National Standard (PNS) under the auspices of the Bureau of Agriculture and Fisheries Standards (BAFS) is in accordance with the provisions of the Agriculture and Fisheries Modernization Act of 1997 that is supportive of the rice production enhancement program of the government.

The PNS Grains - Grading and classification – Paddy and milled rice covers the quality and safety standards, along with prescribed packaging materials, labeling, and price tags that may be observed in the market. It considers the following benefits or advantages of grains standardization to farmers, traders, millers, retailers, processors, academe, researchers, and other stakeholders:

a. Improvement on the efficiency by reduction of post-harvest losses
b. Increased public awareness on food quality and safety
c. Promotion of consumers’ right and welfare
d. Availability of competitively-priced rice
e. Fair and reasonable returns from rice post-production and marketing
f. Rice industry competitiveness in the domestic and international markets

This Standard provides specific guidance to promote product quality and safety, ensure efficiency, and strengthen competitiveness in rice post-production and marketing. Moreover, this Standard aims to support effective implementation or institutionalization of the national grains standards, particularly rice, through continuing advocacy, enforcement, and monitoring activities among rice farmers, millers, traders/wholesalers and retailers, and the general consuming public.
1 Scope

This Standard covers the recommended product specifications, packaging and labeling of *Indica*-type paddy and milled rice to be sold in the local and international market. It is neither applicable to other products derived from rice, nor to special rice.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

- PNS/BAFS 162:2015, *Pesticide Residues in Rice: Maximum Residue Limits (MRLs)*
- PNS/BAFS 194:2017, *General Standard for Contaminants and Toxins in Food and Feed*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1 amylose

type of starch with glucose molecules having a straight-chain, or linear, structure. Its percentage determines the tenderness or firmness of cooked rice and its staling property when left unattended at room temperature

3.2 brewers

chips
binlid
small pieces of kernels that pass through a sieve having 1.4 mm round perforation

3.3 broken kernels

brokens
pieces of kernels smaller than 75 % of the average length of the whole kernel

3.4 chalky kernels

kernels, whole or broken, 50 % or more of which is similar to the color of white chalk
3.5 contrasting type
paddy/rice kernels of different varieties other than the variety designated, wherein the
size, shape, and color differ distinctly from the characteristics of kernels of the variety
designated

3.6 damaged kernels
<milled rice> kernels which are obviously damaged by insects, water, diseases and/
or any other means seen by the naked eye

3.7 damaged kernels
<paddy> kernels which have germinated, distinctly damaged by insects, microorganisms, water, heat and/or any other means

3.8 degree of milling
extent to which the bran layers have been removed in hulled rice

3.8.1 undermilled rice
UMR
rice kernel from which the hull, germ, outer bran layer, and the greater part of the
inner bran layers have been removed but parts of the lengthwise streaks (in the dorsal portion) of the bran layers remain in more than 40 % of the kernels

3.8.2 regular milled rice
RMR
rice kernel from which the hull, the germ, the outer bran layers and the greater part of the inner bran layers have been removed but parts of the lengthwise streaks of the bran layers remain in 20 % to 40 % of the kernels

3.8.3 well milled rice
WMR
rice kernels from which the hull, the germ, the outer bran layers and the greater part of the inner bran layers have been removed, but parts of the lengthwise streaks of the bran layers remain in less than 20 % of the kernels

3.8.4 overmilled rice
OMR
rice kernel from which the hull, the germ, the bran layers, and part of the endosperm have been removed
3.9 discolored kernels
3.10 fermented kernels

kernels that have changed their original color as a result of heating and other means

3.10 distributor
3.10 importer
3.10 exporter

any establishment that imports or exports raw materials, active ingredients and/or finished product for its own use or for whole sale distribution to other establishments or outlets. If the distributor/importer/exporter sells to the general public, it should be considered as a retailer.

3.11 foreign matter

<milled rice> all matters other than whole or broken rice kernels such as (a) foreign seeds, husks, bran and (b) sand, dust

3.12 foreign matter

<paddy> all matters other than paddy grains such as (a) chaff, straw, other crop seeds and (b) sand, gravel, dirt, pebbles, stones, lumps of earth, clay, mud

3.13 gelatinization temperature

GT range of temperature within which starch granules start to swell irreversibly in hot water with accompanied loss of birefringence and crystallinity

3.14 germ

embryo

small portion which lies on the ventral side of the rice kernel from where the seed germinates

3.15 glycemic index

physiological classification of dietary carbohydrates based on the blood glucose response from a food relative to the standard glucose solution or starchy food

3.16 grade

designation indicating the degree of quality of paddy or milled rice

3.16.1 premium grade

meets the highest grade requirements as set forth in the herein prescribed national standards
3.16.2
 grade no. 1
 meets the second highest grade requirements for rice as set forth in the herein
 prescribed national standards

3.16.3
 grade no. 2
 lower in quality than grade no. 1 but higher in quality than grade no. 3, based
 on the grade requirements for rice as set forth in the herein prescribed national
 standards

3.16.4
 grade no. 3
 lower in quality than grade no. 2 but higher in quality than grade no.4 based on
 grade requirements for milled rice as set forth in the herein prescribed national
 standards. Any paddy variety which meets the lowest grade requirements for
 paddy as set forth in the herein prescribed national standards

3.16.5
 grade no. 4
 lower in quality than grade no. 3 but higher in quality than grade no.5 based on
 the grade requirements for milled rice as set forth in the herein prescribed
 national standards

3.16.6
 grade no. 5
 meets the lowest grade requirement for milled rice as set forth in the herein
 prescribed national standards

3.17
 grain
 paddy and milled rice which can also be alternatively called kernel

3.18
 grain size
 grain length
 category of at least 80 % of the sample of paddy or whole milled rice kernels to which
 the sample belongs and is measured in millimeters

3.18.1
 extra long
 <milled rice> rice with 80 % or more of the whole milled rice kernels having a
 length equal to 7.5 mm and above

3.18.2
 extra long
 <paddy> length of the full size paddy grain (excluding the awn) is 9.9 mm and
 above
3.18.3  
**long**  
*milled rice* rice with 80 % or more of the whole milled rice kernels having a length equal to 6.4 mm to 7.4 mm

3.18.4  
**long**  
*paddy* length of the full size paddy grain (excluding the awn) between 8.8 mm to 9.8 mm

3.18.5  
**medium**  
*milled rice* rice with 80 % or more of the whole milled rice kernels having a length of 5.5 mm to 6.3 mm

3.18.6  
**medium**  
*paddy* length of the full size paddy grain (excluding the awn) is between 8.0 mm to 8.7 mm

3.18.7  
**short**  
*milled rice* rice with 80 % or more of the whole milled rice kernels having a length of less than 5.5 mm

3.18.8  
**short**  
*paddy* length of the full size paddy grain (excluding the awn) is below 8.0 mm

3.19  
**immature kernels**  
head rice or broken kernels which are light green and chalky with soft texture

3.20  
**Indica rice**  
one of the two major subspecies of rice characterized by long and thin grains, which are generally fluffy when cooked

3.21  
**iron-fortified rice**  
milled rice to which fortificant kernels (rice kernel coated or extruded with iron) are added to enhance its nutritive value

3.22  
**labeling**  
any written, printed or graphic matter (1) upon any article or any of its container or wrappers or (2) accompanying the packaged food
3.23 maximum level ML
maximum concentration of a contaminant recommended by Philippine National Standards which is legally permitted in rice

3.24 maximum residue limit MRL
maximum concentration of a pesticide residue (expressed as mg/kg), recommended by Philippine National Standard which is legally permitted in rice

3.25 milled rice
polished rice
kernels obtained after removal of hull and bran

3.26 moisture content MC
water content of paddy and milled rice expressed in percentage (%)

3.27 packaging
activity of placing rice and/or their by-products into containers/bags of varying sizes for easier handling or distribution

3.28 paddy
rough rice
palay
unhulled grain of Oryza sativa L., which means grain with the glumes enclosing the kernel

3.29 purity
percentage of paddy free of foreign matter

3.30 red kernels
kernels that have red bran covering, wholly or partly

3.31 rice variety
specific name given to a rice (Oryza sativa) line that results from genetic improvement and approved for commercial release by a national agency or traditional rice that has been selected a long time ago but has not undergone formal seed system
special rice

rice variety (traditional or modern) possessing any special quality such as glutinous, aromatic, pigmented, japonica, and micronutrient-dense rice. It includes those varieties with excellent eating and nutritive quality

weed seeds and other crop seeds

seeds of any plant other than rice

woven polypropylene

WPP

polypropylene (thermoplastic resin material that is produced by polymerization of propylene) strips/threads/yarns that have been woven in two directions, the warp (yarn running lengthwise in a woven material) and the weft (yarn running perpendicular to the warp) to create a light and strong material. It could be in laminated or non-laminated form

4 Quality standards

These parameters are further defined in terms of intrinsic or acquired characteristics of paddy and milled rice as summarized in Tables 1 and 2.

4.1 Quality standards for paddy

4.1.1 Paddy should be classified as extra long, long, medium, or short according to grain size.

4.1.2 Paddy should conform with the grade requirements specified in Table 1.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Grade factors (% by weight) Purity, min.</th>
<th>Grade factors (a) Weed seeds and other crop seeds, max.</th>
<th>Grade factors (b) Other foreign matters, max.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grade no. 1</td>
<td>95.00</td>
<td>0.15</td>
<td>4.85</td>
</tr>
<tr>
<td>Grade no. 2</td>
<td>90.00</td>
<td>0.25</td>
<td>9.75</td>
</tr>
<tr>
<td>Grade no. 3</td>
<td>85.00</td>
<td>0.50</td>
<td>14.50</td>
</tr>
</tbody>
</table>

Table 1 – Grade requirements for paddy
### 4.1.2.1
Paddy which exceeds the maximum limit or falls short of the minimum requirements for any grade factor or parameter of a given grade shall be given the next lower grade.

### 4.1.2.2
Paddy which does not meet the requirements for any of the grades shall be graded as **Off-Grade Paddy**.

### 4.1.2.3
The maximum percentage of (a) weed seeds and other crop seeds shall not be exceeded but the maximum percentage of (b) other foreign matter may be exceeded provided that the maximum percentage of total foreign matter is not exceeded.

### 4.2 Quality standards for milled rice

#### 4.2.1
Milled rice should be classified as extra long, long, medium, or short according to grain size.

#### 4.2.2
Milled rice shall be classified as overmilled rice, well milled rice, regular milled rice, or undermilled rice according to degree of milling.

#### 4.2.3
Milled rice shall conform with the grade requirements specified in Table 2.

**Table 2 – Grade requirements for milled rice**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Grade factors (% by weight)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Premium</td>
</tr>
<tr>
<td>Broken kernels, max.</td>
<td>5.00</td>
</tr>
<tr>
<td>Parameter</td>
<td>Grade</td>
</tr>
<tr>
<td>-----------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td></td>
<td>Premium</td>
</tr>
<tr>
<td>max. (total including brewers)</td>
<td>0.10</td>
</tr>
<tr>
<td>Brewers, max.</td>
<td>0.50</td>
</tr>
<tr>
<td>Defectives</td>
<td>0.50</td>
</tr>
<tr>
<td>Defectives</td>
<td>4.00</td>
</tr>
<tr>
<td>Defectives</td>
<td>0.20</td>
</tr>
<tr>
<td>Contrasting type, max.</td>
<td>3.00</td>
</tr>
<tr>
<td>Red kernel, max.</td>
<td>1.00</td>
</tr>
<tr>
<td>Foreign matters, max.</td>
<td>0.025</td>
</tr>
<tr>
<td>Paddy, max. (no. per 1,000 grams)</td>
<td>5.00</td>
</tr>
</tbody>
</table>

4.2.3.1 Milled rice which exceeds the maximum limit or falls short of the minimum grade requirement for any grade factor or parameter of a given grade shall be given the next lower grade.

4.2.3.2 Milled rice which does not meet the requirement for any of the grades shall be graded as Off-Grade Rice.

4.2.3.3 The maximum percentage of brokens may be exceeded provided that the maximum percentage of brewers is not exceeded.

4.2.3.4 Milled rice which contains 50% or more red grains shall be graded according to the grade requirements in Table 2 and the word Red Kernel shall be added as part of the grade designation.
5 Food safety parameters

These parameters are further defined in terms of Maximum Residue Limits (MRLs) for pesticides, maximum level (ML) for contaminants (heavy metals), moisture content, presence of insect infestation, and microbial infection.

5.1 Maximum Residue Limits (MRLs)

The MRLs for rice shall be in conformance with the limits stated under the Philippine National Standards (PNS/BAFS 162:2015) Pesticide Residues in Rice: Maximum Residue Limits (MRLs) or its latest issuance.

5.2 Maximum Level (ML)

The ML for rice shall be in conformance with the limits stated under the PNS General Standard for Contaminants and Toxins in Food and Feed (PNS/BAFS 194:2017) or its latest issuance.

5.3 Moisture content

The maximum moisture content for paddy and milled rice shall be in conformance with the set value which is 14 % as stated under the PNS Code of Good Agricultural Practice for Rice (PNS/BAFS 141:2015) and PNS Organic Milled Rice (PNS/BAFPS 42:2008).

5.4 Insect infestation

Rice shall be free of any live stored grain insect pest.

5.5 Microbial infection

Rice shall be free of signs of microbial infection.

6 Packaging and labeling

6.1 Dried paddy shall be packed in clean and appropriate packaging material in accordance with the PNS Code of Good Agricultural Practice for Rice. Packaging materials previously used for feeds and other chemically contaminated containers shall not be used.

6.2 Packaging materials to be used for milled rice shall be brand new and food-grade. Suitable food-grade ink shall be used for printing or labeling on the packaging material.

6.3 The minimum requirements for labelling of milled rice shall be:

6.3.1 Name of product (e.g., milled rice) if the contents are not visible from the outside;
6.3.2 Grade of milled rice;
6.3.3 Degree of milling;
6.3.4 Net weight¹;
6.3.5 Moisture content, in percent; and
6.3.6 Name and address of distributor.

7 Price tag of retailing unpacked rice

The price tag to be used in retailing unpacked rice shall be in accordance with the standard requirement set under Table 3.

Table 3 – Standard requirement for price tag in unpacked rice for retail

<table>
<thead>
<tr>
<th>Particulars</th>
<th>Standard requirement</th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Size of price tag (length by width)</td>
<td>21.5 cm x 16.5 cm</td>
</tr>
<tr>
<td>B. Color of price tag</td>
<td></td>
</tr>
<tr>
<td>• Premium grade rice</td>
<td>Light yellow</td>
</tr>
<tr>
<td>• Well milled rice Grade nos. 1, 2, 3, 4, or 5</td>
<td>White</td>
</tr>
<tr>
<td>• Regular milled rice Grade nos. 1, 2, 3, 4, or 5</td>
<td>White</td>
</tr>
<tr>
<td>C. Color of print on price tag</td>
<td>Black</td>
</tr>
<tr>
<td>D. Prescribed information</td>
<td>Price per kilogram (₱/kg)</td>
</tr>
<tr>
<td></td>
<td>Classification</td>
</tr>
<tr>
<td></td>
<td>Iron-fortified rice</td>
</tr>
<tr>
<td></td>
<td>Grade</td>
</tr>
</tbody>
</table>

7.1 Unpacked milled rice for retail shall be displayed in wooden rice boxes painted on the outside with food-grade white paint or fiberglass rice boxes which shall be free of posters/advertisements. The white painted wooden rice boxes shall be covered (at the end of business hours) to ensure that the rice will not be exposed to pests and other contaminants that may cause harm to the consumers. The prescribed color-coded price tag shall be conspicuously displayed on the grains box.

7.2 The required information shall be printed in bold letter and figures (except the unit symbol “kg” for the unit name “kilogram/s”) on the color-coded price tag.

8 Methods of test and analysis

The methods of test and analysis for rice should conform with the procedures of the competent authority.

¹ This amount of milled rice exclusive of the packaging/ container (sack) shall be declared/ labeled in “nominal net weight” in “SI” (International Systems of Units) units.

This is the use of the unit symbol “kg” for unit name kilogram/ kilograms and the unit symbol “g” for unit name gram/ grams which shall have a space after the numerical value (50 or 25).

Ambiguous expressions such as “approximate”, “standard”, “when packed”, and “as packed” following the net weight shall not be used as part of the quantity declaration.
9 Hygiene

It is recommended that the products covered by the provisions of this Standard be prepared and handled in accordance with the PNS Good Warehousing Practices for Bagged Grains (PNS/BAFS 195:2016).
Annex A
(informative)

Amylose content in rice

Table A.1 – Grouping of rice varieties according to amylose content (AC) and gelatinization temperature (GT)

<table>
<thead>
<tr>
<th>Cluster</th>
<th>AC&lt;sup&gt;a&lt;/sup&gt;</th>
<th>GT&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Freshly cooked rice texture</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>L</td>
<td>L</td>
<td>Tender</td>
</tr>
<tr>
<td>1B</td>
<td>L</td>
<td>I/HI</td>
<td>Tender</td>
</tr>
<tr>
<td>1C</td>
<td>I</td>
<td>I/HI</td>
<td>Tender</td>
</tr>
<tr>
<td>2A</td>
<td>H</td>
<td>I</td>
<td>Moderately tender</td>
</tr>
<tr>
<td>2B</td>
<td>I</td>
<td>L</td>
<td>Moderately tender to hard</td>
</tr>
<tr>
<td>3</td>
<td>H</td>
<td>L</td>
<td>Hard</td>
</tr>
</tbody>
</table>

<sup>a</sup> L = Low AC; I = Intermediate; H = High (NCT, 1996; Juliano et al., 2012)

<sup>b</sup> L = Low; I = Intermediate; HI = High-Intermediate (NCT, 1996)

Table A.2 – Rice varieties grouped according to cluster

<table>
<thead>
<tr>
<th>Cluster</th>
<th>AC&lt;sup&gt;a&lt;/sup&gt;</th>
<th>GT&lt;sup&gt;b&lt;/sup&gt;</th>
<th>Freshly cooked rice texture</th>
<th>Varieties</th>
</tr>
</thead>
<tbody>
<tr>
<td>1A</td>
<td>L</td>
<td>L</td>
<td>Tender</td>
<td>NSIC Rc21, NSIC Rc31, PSB Rc72H (MESTISO), NSIC Rc104 (BALILI), NSIC Rc128 (MABANGO 1), NSIC Rc160 (TUBIGAN 14), NSIC Rc170 (MS 11), NSIC Rc176H (MESTISO 13), NSIC Rc182 (SALINAS 1), NSIC Rc218 SR (MABANGO 3), NSIC Rc220 SR (JAPONICA 1), NSIC Rc266H, NSIC Rc268H, NSIC Rc288, NSIC Rc304, NSIC Rc436, NSIC Rc468, NSIC Rc474, NSIC Rc480, NSIC Rc482, NSIC Rc484, NSIC Rc488, NSIC Rc502, NSIC Rc504, NSIC Rc130 (TUBIGAN 1), NSIC Rc190 (SALINAS 5), NSIC Rc290, NSIC Rc292, NSIC Rc396, NSIC Rc400, NSIC Rc404</td>
</tr>
<tr>
<td>1B</td>
<td>L</td>
<td>I</td>
<td>Tender</td>
<td>NSIC Rc172 (MS 13), NSIC Rc178H (MESTISO 14), NSIC Rc188 (SALINAS 4), NSIC Rc196H (MESTISO 16), NSIC Rc208H (MESTISO 22), NSIC Rc210H (MESTISO 23), NSIC Rc224 (TUBIGAN 19), NSIC Rc234H (MESTISO 27), NSIC Rc236H (MESTISO 28), NSIC Rc242, NSIC Rc246H, NSIC Rc260H, NSIC Rc262H, NSIC Rc274, NSIC Rc320, NSIC Rc330, NSIC Rc332, NSIC Rc456, NSIC Rc468, NSIC Rc490</td>
</tr>
<tr>
<td>1B</td>
<td>L</td>
<td>HI</td>
<td>Tender</td>
<td>NSIC Rc190 (SALINAS 5), NSIC Rc290, NSIC Rc292, NSIC Rc396, NSIC Rc400, NSIC Rc404</td>
</tr>
<tr>
<td>1C</td>
<td>I</td>
<td>I</td>
<td>Tender</td>
<td>NSIC Rc174H (MESTISO 12), NSIC Rc186 (SALINAS 3), NSIC Rc23, NSIC Rc25, NSIC Rc27, NSIC Rc29, NSIC Rc192 (SAHOD ULAN 1), NSIC Rc198H (MESTISO 17), NSIC Rc200H (MESTISO 18), NSIC Rc202H (MESTISO 19), NSIC Rc204H (MESTISO 20), NSIC Rc206H (MESTISO 21), NSIC Rc212 (TUBIGAN 15), NSIC Rc214 (TUBIGAN 16), NSIC Rc216 (TUBIGAN 17), NSIC Rc222 (TUBIGAN 18), NSIC Rc226 (TUBIGAN 20), NSIC Rc228H (MESTISO 24), NSIC Rc232H (MESTISO 26), NSIC Rc254H, NSIC Rc256H, NSIC Rc258H, NSIC Rc264H, NSIC Rc270H, NSIC Rc284, NSIC Rc296, NSIC Rc314H, NSIC Rc322H, NSIC Rc324, NSIC Rc326, NSIC Rc336, NSIC Rc344SR, NSIC Rc350H</td>
</tr>
<tr>
<td>Cluster</td>
<td>AC</td>
<td>GT</td>
<td>Freshly cooked rice texture</td>
<td>Varieties</td>
</tr>
<tr>
<td>---------</td>
<td>----</td>
<td>----</td>
<td>-----------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>NSIC Rc356, NSIC Rc358, NSIC Rc360, NSIC Rc380H, NSIC Rc382H, NSIC Rc384H, NSIC Rc408, NSIC Rc432, NSIC Rc446, NSIC Rc492, NSIC Rc494</td>
</tr>
<tr>
<td>1C</td>
<td>I</td>
<td>HI</td>
<td>Tender</td>
<td>NSIC Rc11 (CANLAON), PSB Rc14 (RIO GRANDE), PSB Rc18 (ALA), PSB Rc20 (CHICO), PSB Rc22 (LILIW), NSIC 2014 Rc25, PSB Rc28 (AGNO), PSB Rc30 (AGUS), PSB Rc32 (JARO), PSB Rc42 (BALIWAG), PSB Rc54 (ABRA), PSB Rc58 (MAYAPA), PSB Rc62 (NAGUILAN), PSB Rc64 (KABACAN), PSB Rc78 (PAMPANGA), PSB Rc80 (PASIG), PSB Rc82 (PENARANDA), PSB Rc84 (SIPOCOT), PSB Rc100 (SANTIAGO), NSIC Rc110 (TUBIGAN 1), NSIC Rc112 (TUBIGAN 2), NSIC Rc120 (MATATAG 6), NSIC Rc122 (ANGELICA), NSIC Rc124 (MESTISO 4), NSIC Rc132H (MESTISO 6), NSIC Rc168H (MESTISO 11), NSIC Rc194 (SUBMARINO 1), NSIC Rc298, NSIC Rc300, NSIC Rc302, NSIC Rc338, NSIC Rc342, NSIC Rc346, NSIC Rc352, NSIC Rc362H, NSIC Rc368H, NSIC Rc370H, NSIC Rc372H, NSIC Rc390, NSIC Rc392, NSIC Rc398, NSIC Rc402, NSIC Rc410, NSIC Rc412, NSIC Rc418, NSIC Rc422, NSIC Rc424, NSIC Rc426, NSIC Rc428, NSIC Rc430, NSIC Rc434, NSIC Rc438, NSIC Rc442, NSIC Rc448, NSIC Rc458, NSIC Rc460, NSIC Rc462, NSIC Rc464, NSIC Rc466, NSIC Rc476</td>
</tr>
<tr>
<td>2A</td>
<td>H</td>
<td>I</td>
<td>Moderately tender</td>
<td>IR69726-29-1-2-2-2 (MATATAG2), PSB Rc3 (GINILINGAN PUTI), NSIC Rc9 (APO), PSB Rc74 (AKLAN), NSIC Rc276, NSIC Rc282, NSIC Rc286, NSIC Rc386H, NSIC Rc388H, NSIC Rc444, NSIC Rc450, NSIC Rc452, NSIC Rc454, NSIC Rc496</td>
</tr>
<tr>
<td>2A</td>
<td>H</td>
<td>HI</td>
<td>Moderately tender</td>
<td>PSB Rc16 (ENNANO), PSB Rc24 (CAGAYAN), PSB Rc36 (MA-AYON), PSB Rc38 (RINARA), PSB Rc40 (CHAYONG), PSB Rc56 (DAPITAN), PSB Rc60 (TUGATOG), PSB Rc66 (AGUSAN), PSB Rc68 (SACOBIA), PSB Rc76H (PANAY), PSB Rc102 (MAMBURAO), NSIC Rc364H, NSIC Rc366H, NSIC Rc374H, NSIC Rc376H</td>
</tr>
<tr>
<td>2B</td>
<td>I</td>
<td>L</td>
<td>Moderately tender to hard</td>
<td>PSB Rc34 (BUR DAGOL), PSB Rc50 (BICOL), PSB Rc90 (BUGUEY), NSIC Rc106 (SUMILAO), NSIC Rc134 (TUBIGAN 4), NSIC Rc136H (MESTISO 7), NSIC Rc138 (TUBIGAN 5), NSIC Rc146 (PJ7), NSIC Rc148 (MABANGO 2), NSIC Rc166H (MESTISO 10), NSIC Rc180H (MESTISO 15), NSIC Rc230H (MESTISO 25), NSIC Rc238, NSIC Rc240, NSIC Rc244H, NSIC Rc248H, NSIC Rc250H, NSIC Rc252H, NSIC Rc272, NSIC Rc278, NSIC Rc280, NSIC Rc294, NSIC Rc306H, NSIC Rc308, NSIC Rc310H, NSIC Rc312H, NSIC Rc316H, NSIC Rc318H, NSIC Rc328, NSIC Rc334, NSIC Rc348, NSIC Rc354, NSIC Rc378H, NSIC Rc394, NSIC Rc406, NSIC Rc414, NSIC Rc416, NSIC Rc420, NSIC Rc440, NSIC Rc478</td>
</tr>
<tr>
<td>3</td>
<td>H</td>
<td>L</td>
<td>Hard</td>
<td>PSB Rc6 (CARRANGLAN), PSB Rc8 (TALAVERA), PSB Rc44 (GOHANG), PSB Rc46 (SUMADEL), PSB Rc86 (MATNOG), PSB Rc92 (SAGADA), PSB Rc94 (HUNGDUAN), PSB Rc96 (IBULAO), PSB Rc98</td>
</tr>
<tr>
<td>Cluster</td>
<td>AC&lt;sup&gt;a&lt;/sup&gt;</td>
<td>GT&lt;sup&gt;b&lt;/sup&gt;</td>
<td>Freshly cooked rice texture</td>
<td>Varieties</td>
</tr>
<tr>
<td>---------</td>
<td>---------------</td>
<td>---------------</td>
<td>-----------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(LIAN), NSIC Rc152 (TUBIGAN 10), NSIC Rc164H (MESTISO 9), NSIC Rc340, NSIC Rc470, NSIC Rc472, NSIC Rc498, NSIC Rc500</td>
<td></td>
</tr>
</tbody>
</table>

<sup>a</sup> Amylose Content; L = Low; I = Intermediate; H = High (NCT, 1996; Juliano et al., 2012)

<sup>b</sup> Gelatinization Temperature; L = Low; I = Intermediate; HI = High-Intermediate (NCT, 1996)
Annex B
(informative)

**Glycemic index of rice varieties**

<table>
<thead>
<tr>
<th>Rice variety</th>
<th>GI value (Mean + SEM)</th>
<th>Classification (Low, medium, or high)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PSB RC 10</td>
<td>50 ± 3</td>
<td>Low</td>
</tr>
<tr>
<td>Brown rice IR 64</td>
<td>51 ± 1</td>
<td>Low</td>
</tr>
<tr>
<td>Brown rice (Sinandomeng)</td>
<td>55 ± 2</td>
<td>Low</td>
</tr>
<tr>
<td>IR 64</td>
<td>57 ± 3</td>
<td>Medium</td>
</tr>
<tr>
<td>PSB RC 18</td>
<td>59 ± 4</td>
<td>Medium</td>
</tr>
<tr>
<td>Improved malagkit sung song</td>
<td>63 ± 2</td>
<td>Medium</td>
</tr>
<tr>
<td>PSB RC 12</td>
<td>63 ± 3</td>
<td>Medium</td>
</tr>
<tr>
<td>NSIC RC 160</td>
<td>70 ± 4</td>
<td>High</td>
</tr>
<tr>
<td>Sinandomeng</td>
<td>75 ± 4</td>
<td>High</td>
</tr>
<tr>
<td>Japonica rice</td>
<td>88 ± 6</td>
<td>High</td>
</tr>
</tbody>
</table>

*Trinidad and Mallillin (2011)
Annex C
(informative)

Type of packaging material for milled rice

1. Woven polypropylene or WPP (laminated or all transparent)
2. Polyethylene
3. Kraft paper
Bibliography

CAC/RCP 1-1969 (Rev. 2003), *General Principles of Food Hygiene*

CODEX STAN 1-1985 (Amd. 2010), *General Standard for the Labelling of Prepackaged Foods*

CODEX STAN 198-1995, *Codex Standard for Rice*


ISO 7301, *Rice – Specification*


OIML R 79:2015, *Labeling requirements for prepackages*


PNS/PAES 206:2015, *Agricultural machinery – Rice mill - Specifications*

Republic Act No. 7851 (1992). *An Act providing Protection to Consumers by Stabilizing the Prices of Basic Necessities and Prime Commodities and By Prescribing Measures Against Undue Price Increases During Emergency Situations and Like Occasions*


Department of Agriculture
Bureau of Agriculture and Fisheries Standards

Technical Working Group (TWG) for the Development of the Philippine National Standard (PNS) for Grains – Grading and classification – Paddy and milled rice

Chairperson
Rolando B. Gomez
National Food Authority
Department of Agriculture

Members

1 Mario G. Andrada
2 Haydee A. Horlador
3 Eduardo A. Jarcia
4 Agripina B. Lorenzo
5 Maria Jessica B. Sanchez
National Food Authority
Department of Agriculture

7 Marissa V. Romero
8 Rosaly V. Manaois
Philippine Rice Research Institute
Department of Agriculture

9 Rosemarie G. Garcia
Food and Nutrition Research Institute
Department of Science and Technology

6 Ma. Cristina B. Gragasin
Philippine Center for Postharvest Development and Mechanization
Department of Agriculture

Project Manager
John Gregory V. Aquino
Farlash D. Pancho
Francesca Louise P. Garcia

Advisers
Vivencio R. Mamaril

Bureau of Agriculture and Fisheries Standards