On Pack Recycling Logo (OPRL)
Initial Guidelines (Phase 1) v. 2.0

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WWF-SA

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Contents

ABBREVIATIONS

ABS	Acrylonitrile butadiene styrene
AC	Acrylic
PA	Polyamide 4, 6, 11, 66
PAN	Polyacrylonitrile
PBAT	Poly(butylene adipate-co-terephthalate
PBS	Poly(butylene succinate)
PE	Polyethylene
PE-LD	Polyethylene low density
PE-LLD	Polyethylene linear low density
PE-HD	Polyethylene high density
PET	Polyethylene terephthalate
PGA	Poly(glycolic acid)
PHB	Poly(hydroxybutyrate)
PLA	Poly(lactide)
PMA	Poly methyl acrylate
PMMA	Poly(methyl) methacrylate
POM	Polyoxymethylene
PP	Polypropylene
PS	Polystyrene
EPS (PSE)	Expanded polystyrene
PU (PUR)	Polyurethane
PVC	Polyvinyl chloride

INTRODUCTION

Retailers, consumers and industry alike agree that there is a need for a unified message to be given to the consumer with regards to recycling of packaging in South Africa.

On pack recycling information is seen as a positive communications method to provide education and awareness information to the consumer. It is seen as a way to inform the consumer on whether or not the packaging they are holding is actually recycled in the country, or what the packaging is made of, and whether or not the packaging material should be included in the recycling stream.

WWF-SA was approached by a number of retailers to facilitate a collective and commonly accepted approach to On Pack Recycling Labelling (OPRL). This document sets out the initial OPRL guidelines collectively agreed to, accepted and endorsed by six of South Africa's retailers, namely; Clicks, Food Lovers, Pick n Pay, Spar, Shoprite and Woolworths.

This document is aimed at facilitating the acceptance, usage and embracement of OPRL by consumers, retailers, brand owners and all other affected stakeholders in the packaging value chain. It is written as a living document that is expected to be updated and changed with changes in packaging and recycling technology, infrastructure investment and consumer demands. It hopes to provide guidance with the classification of packaging as recycled or not recycled through the application of principles as opposed to hard cut rules, the latter being clearly impossible within the complexity of packaging.

It is envisaged that this document will encourage all brand owners to accept and endorse the OPRL guidelines contained herein and to elicit additional inputs on the subject.

Section 1 of the document defines the agreed upon definition and terminology to be used on the OPRL, namely "Recycled", "Not Recycled". Section 2 sets out the 5 principles which, it is believed, if followed should assist packaging designers with classification of packaging. Section 3 raises the topic of material identification symbols (and numbers) and their continued use along with OPRL. Section 4 then elaborates on some of the specifics regarding the OPRL artwork that have been agreed upon. Section 5 closes with a call to action from all industry stakeholders to endorse, support and help build this OPRL guideline into a sustainable set of industry standards accepted, trusted and used by all.

OPRL Application and Use Guidelines

1. Core Definition – Recycled, Not Recycled

Inputs from various stakeholders as well as guidance from existing standards on the definition of recyclability have been used to inform the decision on recyclability terminology used in this OPRL report for the South African market.

Annexure A provides various definitions for "Recyclable" claims from numerous global and local organisations. Based on these definitions and coupled with the desire to limit confusion at the consumer level, the description of recyclability to be used on the OPRL systems has been agreed to be limited to "Recycled" or "Not Recycled".

Considering that the fundamental principles underlying all the definitions in Annexure A are similar, the Ellen MacArthur Foundation's New Plastics Economy definition has been adapted slightly for South Africa and adopted as follows:

> An item may be labelled as "Recycled" if it's successful post-consumer collection, sorting, and recycling is proven to currently work in practice and at scale in South Africa. With reference to this guideline, if the material is listed in the packaging types and formats that are currently recycled in South Africa (Appendix B subsequent to updates to Design for Recycling Guideline) and if the material is recycled or collected at scale in at least one metro/province in South Africa.
>
> An item must be labelled as "Not Recycled" if a substantial volume is currently not being recycled and/or if it is classified as non-recyclable (Appendix B) due to poor design as defined in the evolving Design for Recycling Guideline.

Quantitatively defining 'in practice', 'at scale' and 'substantial', is challenging because of data availability. However, a few (non-exhaustive) suggested qualitative prerequisites are listed below:

1. There are significant and relevant geographical areas where (formal or informal) collection system(s) are in place that collect for recycling a large share of the packaging put on the market in that region.
2. The package is compatible with the material stream in which it is collected.
3. The package is sorted and aggregated into defined streams for recycling processes and the vast majority of what is collected actually gets recycled.
4. The package can be processed and recycled with commercial recycling processes.
5. A viable end market for the recyclate is available to put the material back in use.

One metric to determine to what extent these prerequisites are in place and therefore, if recycling of a certain packaging works in practice and at scale, would be the actual recycling rate. However, data on recycling rates by packaging type is not always perfect and, therefore, does not yet allow for a fully quantified metric to be developed. The recycling rate should however be used wherever possible.

Annexures "B" and "C" are provided as the preliminary guidelines to plastic formats and combination of resin/format types that are considered Recycled and Not Recycled and will

change with revisions to the Design for Recycling Guideline. Further information regarding compatibility and classification of resin/format combinations may also be obtained in the latest Design for Recycling Guidelines from Packaging SA.

For the other substrates such as glass, tin, aluminium, cardboard and paper the complexity is far less but by no means absent. It is thus important that packaging designers, manufacturers/producers apply the following 5 principles when designing and classifying their packaging.

2. CLASSIFICATION GUIDELINES

The classification of packaging as recyclable or not recyclable has many facets. Notwithstanding the list of plastics packaging items in Annexure "B" and Annexure "C", for the purpose of this agreement the following 5 principles are expected to be used as guidelines on the journey to the correct application of the 'recycled'/'not recycled' classification on OPRL.

These principles are an attempt to facilitate implementation and classification of recycled, not recycled by product developers of new packaging products as well as assessors of existing packaging products. It is hoped that through the application of principles as opposed to hard cut rules, packaging classification will be better served, as the latter option of hard cut rules is clearly impossible within the ever evolving complexity of packaging.

Principle 1: Define without exception or bias.

Principle 1 strives to encourage honesty, acceptance and awareness and to drive behaviour through transparency. Principle 1 requires that all packaging placed on shelf needs to be clearly classified and marked as one of the binary terms "Recycled" or "Not Recycled". If this is not possible, perhaps due to lack of information, or the resulting classification conflicts with the required targets/ambitions set out by the company/brand owner then the packaging should be redesigned to achieve the desired result.

To avoid clearly stating the classification as a result of not wishing to have a negative "Not Recycled" on the packaging, or because of a lack of information informing the classification, would be to go against principle 1's requirement of "without exception". Similarly, to choose to define a packaging format as recycled based on its substrate without acknowledging the role that the contents of the packaging may play in influencing the classification would also go against this principle's requirement of without bias.

Principle 2: Every component justified.

This principle requires designers to identify and assess each component's role in the full packaging make-up of the product. To ensure application of principle 2, packaging designers must clearly consider the inclusion and role of each separable packaging item in the make-up of the final complete packaging placed on shelf. Through comprehensive identification of all components this principle hopes to raise awareness of the role each component plays and to assess if the packaging is appropriately designed.

By way of examples: 1) Single use water bottles have as their common components the bottle itself, the closure, as well as the label. 2) Beef burger patties can have the plastic punnet/tray, the plastic film lidding, as well as plastic portion-separation layers, and a paper/board sleeve containing the relevant dietary information.

In the examples above, each of the components that make up the entire pack are required to be identified separately and their inclusion justified within the total packaging.

Principle 3: The sum of the parts is greater than the whole.

Each packaging component must be assessed in combination with each other component to derive the final complete pack and not in isolation from each other. It is important to accept that individually packaging components may be classified as recyclable, but when these components are combined, they no longer fulfil the definition of being recyclable.

An example is yoghurt portion packs. Separated, the plastic portion pack, film lidding and paper label may each be defined as recyclable. However, when the paper label is combined with the plastic portion pack the combined packaging product is no longer recyclable.

Similarly, the use of PET shrink labels on PET bottles would yield the complete package not recycled whilst the individual items of label and bottle would be 'not recycled' and 'recycled' respectively.

Different combinations of the different components can result in a vastly different classification outcome. It is recommended that the latest Design for Recycling Guidelines[1] be used by designers or an interactive electronic platform still to be developed to assist with packaging compatability.

Principle 4: Understand the role of the contents of the packaging in defining Recycled vs. Not Recycled.

The full packaging component must also account for the contents of the pack in defining its recyclability. Principle 4 challenges designers to critically evaluate fit for purpose packaging types within the construct of the recycled definition.

Principle 5: Packaging is always evolving.

The materials identified in this OPRL guideline report, including the annexures herein, addressing the substrate as currently recycled or not recycled in South Africa are at this stage often interpreted differently. New combinations of materials are constantly being designed and new recycling technology is constantly being implemented - both of which will affect the classification of packaging types (formats and substrates) through time.

As far as possible applying principles 1 through 4 should aid in achieving the correct classification, however, definitions are constantly updated shifting 'not-recycled' to 'recycled'. For example, polystyrene is constantly finding new recycled uses and has seen increased collection, resulting in it now being classified as recycled from previously not recycled. Similarly, PP metallised film is listed in this report as being not recycled, this specifically speaks to chip, snack and chocolate wrappers, with ongoing research into recycling technology this may change. PET punnets/trays are another example where classification may change in the near future.

Principle 5 challenges designers and packaging producers to constantly question the packaging they are placing on shelf, in terms of current recyclability as well as future recyclability[2]. It also places the

[1] https://www.packagingsa.co.za/wp-content/uploads/2014/02/PACSA-Recyclability-by-Design-WEB.pdf

[2] WWF and the author of this report do not take responsibility for packaging being incorrectly labelled and it is the full responsibility of the packaging designer, brand owner or retailer responsible for placing the packaging on shelf.

onus of correct classification on the packaging designer to ensure they have asked the right questions and conducted the right research.

3. Material Identification Codes

It is important that, with specific reference to plastic packaging, the material identification codes continue to appear on the packaging along with the OPRL. These codes are used by the plastic recycling communities even if they are not actively used by consumers. With reference to non-plastic materials the inclusion of the material identification code is to be added at the discretion of the packaging designer.

To guide the inclusion of the material identification code, and to attempt to avoid confusion at the consumer level, the following recommendations are made:

1) The symbol will comprise the traditional chasing arrows (Mobius loop symbol) with the resin code in centre (see annexure "D" for list of material codes).
2) In the event of the plastics resin code being a "7" (seven) for "other" it is required that the materials used to create the 'other' resin are all listed underneath symbol (see examples in annexure "D".
3) Mobius loop symbol should be positioned at a distance from the OPRL as to not create confusion to the customer and:
    a. Shall be clearly embossed/debossed to form part of the physical character of all rigid plastic packaging (i.e. it should be included in the mould design/decoration).
    b. Shall be clearly printed on labels or other flexible packaging formats that do not allow for the inclusion of the design to be embossed/debossed into the physical characteristics of the packaging

4. OPRL Label Artwork

Artwork design and colour variants are based off the existing designs as already supplied by Woolworths. A central design repository containing the relevant artwork is still to be established, however, in the interim the Woolworths examples of the artwork are used for explanation and visual purposes.

Primary Design Element

The examples provided represent the primary design elements to be used for the OPRL artwork. The minimum information required to be on each pack is contained in these primary designs. The primary design is made up of:

1) Packaging component definition - Sleeve/Film
2) The three chasing arrows with or without a strike though representing recycled / not recycled respectively.
3) The basic substrate of the packaging component (Paper / Plastic)

4) And the relevant classification of the component as recycled / not recycled[3].

Polyco recommended that the material identification code be included in the OPRL. This was an option discussed with the retailers but it was decided that the material identification code and OPRL be kept separate on the packaging.

SAPRO recommended to replace 'Plastic' with "This Plastic Format" as just referring to plastic could create confusion as some plastics are recycled and others not. At this stage of the process

Additional Design Element Considerations

COLOUR VARIATIONS

The main colour of the design is black and white; however, variations are to be allowed within acceptable guidelines.

Guideline 1: Where the inclusion of black and/or white into the artwork will increase the number of colours impacting the cost or detract from the overall design of the product the darkest colour of the packaging may be substituted for black. When this deviation from black and white is applied it must be conducted with the goal of ensuring that the recycling information remains clear and easily visible to the consumer and should not be lost as a result of the deviation.

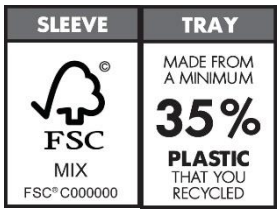
Guideline 2: The use of colour specific green within the design, to emphasise recyclable, is acceptable.

SPECIAL INSTRUCTIONS

Certain special instructions may be included with the OPRL. These additional instructions should be applied when their inclusion **improves** the recyclability of the pack, and thus they are discretionary by nature and are not mandatory. The list of acceptable and agreed special instructions is provided in Annexure "E".

[3] Note that the copy "Widely Recycled" and "Not Recycled Currently" on these images is out of date and will be updated with the new artwork roll out. A simpler "Recycled" / "Not Recycled" set of copy is to be adopted, this is discussed in more detail earlier in the document.

OTHER INFORMATION



Where other information, such as source of material (sustainably sourced) or specialised contents (recycled content) are available these may be included along with the primary information. The inclusion of additional information must be used to provide additional information to the consumer and must in no way create confusion with regards to the recyclability of the packaging.

By way of example: PET Jars may contain recycled PET allowing for additional positive information pertaining to the inclusion of rPET in the pack. However, when these same jars are used for peanut butter their contents make the pack "Not Recycled". Including both sets of design elements should be done in a manner that clearly separates the two aspects of the packaging between recycled content of the pack and recyclability of the pack.

5. CLOSING

The previous sections have attempted to provide the packaging value chain with a starting point on the journey of comprehensive on-pack-recycling-logo application. It acknowledges, as do its guiding members, its limitations and shortcomings and is aware of the complexity in which it tries to navigate.

However, to do nothing is no longer an option, it thus calls upon all in the packaging value chain to support, endorse and collectively enhance these guidelines.

Some retailers will apply appropriate OPRL on packaging and Brand-owners are encouraged to consider and apply OPRL. In so doing to ask their designers if they have applied the principles guiding classification, to question their suppliers regarding the options to move from not recycled to recycled and to champion the call for technology advancements to increase the range of recycled options in the country.

Extended producer bodies and industry specific organisations are called upon to endorse the use of OPRL on packaging and to grow the knowledge base of packaging classification options through information sharing, and "self-regulation" of applied classification. And to also champion the call for technology advancements to increase the range of recycled options in the country.

6. NEXT STEPS

- **Policing this initiative:** it was agreed in the discussions with the retailers that at this stage (Phase 1) the retailers will self-regulate. Concerns from PETCO have been raised around the efficacy of self- regulation and a possible option is for the PROs to regulate the OPRLs of the specific material substrates going forward.
- **Developing an App**
- **Linking to The SA Plastics Pact**
- **Alignment with DEFF 'Design for Recycling Guidelines':** Polyco raised this point and it is

agreed that this guideline be aligned to the Design for Recycling Guidelines currently under development with the Department of Environment, Forestry and Fisheries.

ANNEXURE A – SUMMARY BY SAPRO (SOUTH AFRICAN PLASTICS RECYCLING ORGANISATION)

As the term "recyclability" has an extremely wide definition, authorities all over the world had to narrow it down to stop green-washing by unscrupulous producers. False recyclability claims have become endemic with producers claiming their products are recyclable merely because it is technically feasible – ignoring the fact that recycling those products are not commercially viable and are not achieved in significant volumes in the real world.

Different authorities used a variety of wording and approaches to solve the matter, but in essence they wanted to address false and misleading representations made by marketers. The focus was on ensuring that "recyclable" can only be claimed in cases where the product was actually collected and recycled in the area.

Some examples from global organisations:

United States Federal Trade Commission:

"It is deceptive to misrepresent, directly or by implication, that a product or package is recyclable. A product or package should not be marketed as ***recyclable*** *unless it can be* ***collected, separated, or otherwise recovered from the waste stream*** *through an* ***established recycling program for reuse or use in manufacturing or assembling another item.****"*

As can be seen above, it is not sufficient for the product to be technically feasible to be recycled, but an **established recycling program has to already exist that will accept that product and recycle it**.

The FTC then goes even further and establishes the ***levels*** of availability of established recycling programs in the next paragraph:

Marketers should clearly and prominently qualify recyclable claims to the extent necessary to avoid deception about the availability of recycling programs and collection sites to consumers.

(1) When recycling facilities are available to a ***substantial majority*** *of consumers or communities where the item is sold, marketers can make unqualified recyclable claims. The term* ***"substantial majority,"*** *as used in this context, means at least* ***60 percent.***

(2) When recycling facilities are available to less than a substantial majority of consumers or communities where the item is sold, ***marketers should qualify all recyclable claims****. Marketers may qualify recyclable claims by* ***stating the percentage of consumers or communities that have access to facilities that recycle the item..."***

https://www.ftc.gov/sites/default/files/attachments/press-releases/ftc-issues-revised-greenguides/greenguides.pdf

Australian Competition and Consumer Commission

"These claims can be potentially dangerous if the product is not recyclable, or if the facilities to recycle it are not available in Australia. Manufacturers and retailers should verify that their product can actually be recycled before using such claims."

Green marketing and the Australian Consumer Law 13

"Consumers are likely to understand the term 'recyclable' or recycling symbols on products to mean that the product is likely to end up in a recycling facility. ***If there are very few facilities, such facilities do not exist at all or they exist only as pilot plants, then the use of the term or symbols may be misleading."***

Once again from the above it is clear that ***facilities have to already exist.***

https://www.accc.gov.au/system/files/Green%20marketing%20and%20the%20ACL.pdf

ISO Definition of Recyclable

7.7.1 Usage of term "Recyclable"

"A characteristic of a product, packaging or associated component that can be diverted from the waste stream through ***available processes and programmes and can be collected, processed and returned to use in the form of raw materials or products.***

7.7.2 Qualifications

If collection or drop-off facilities for the purpose of recycling the product or packaging are not conveniently available to a reasonable proportion of purchasers, potential purchasers and users of the product in the area where the product is sold, then the following shall apply.

a) A qualified claim of recyclability shall be used
b) The qualified claim shall adequately convey the ***limited availability of collection facilities***
c) Generalized qualifications, such as "Recyclable where facilities exist", which do not convey the limited availability of collection facilities, are not adequate.

7.7.4 Evaluation methodology

"Evaluation shall" … "include evidence of the following".

a) The ***collection, sorting and delivery systems*** to transfer the materials from the source to the recycling facility are conveniently available to a ***reasonable proportion of the purchasers, potential purchasers and users of the product.***
b) The recycling facilities are available to ***accommodate*** the collected materials
c) The product for which the claim is made is ***being collected and recycled***.

Advertising Standards Authority of South Africa

"Advertisements may not by using the Mobius Loop symbol or in any other way claim that the product is recyclable, merely because it is technically capable of being recycled, unless facilities, which are reasonably accessible, exist for collection and recycling"

In Summary it is clear that:

1) A collection system for the product has to currently exist in your area;
2) The collection system should currently be willing to take in the product;

3) The collection system has to already be taking in the product;
4) The recycling facilities have to already be available to accommodate the product;

5) The recyclers should actually be taking in the product and recycling it;
6) The volumes of material have to already be substantial. Isolated individual cases where recyclers are willing to use small, immaterial volumes does not pass the test;

APR/PRE Global Definition of "Plastics Recyclability" (July 2018)

In a press release published on July 12, 2018, the industry association *Plastics Recyclers Europe (PRE)* informed that, together with the U.S.-based *Association of Plastic Recyclers (APR)*, it has developed a "global definition governing the use of the term 'recyclable' as it relates to plastics packaging and products."

The definition emphasizes the importance of several aspects that go beyond the mere technical recyclability of a material. Thus, for a product to be considered recyclable, the following four conditions should be met:

1) The product must be made with a plastic that is collected for recycling, has market value and/or is supported by a legislatively mandated program.
2) The product must be sorted and aggregated into defined streams for recycling processes.
3) The product can be processed and reclaimed/recycled with commercial recycling processes.
4) The recycled plastic becomes a raw material that is used in the production of new products. "

For "innovative materials," these requirements would mean that the ability to be "collected and sorted in sufficient quantities" should be ensured, along with a "compatibility with existing industrial recycling processes." Alternatively, it should be confirmed that a given product "will be available in sufficient quantities to justify operating new recycling processes."

Ellen Macarthur Foundation Global Commitment Definition

Recyclability is perhaps the most ambiguous term amongst all packaging circularity terminology. 'Recyclable' means different things to different people in different contexts.

In the context of the Global Commitment, where the term 'recyclable' is used for global commitments by businesses that put packaging on the market (e.g. packaging producers, fast-moving consumer goods companies, retailers, hospitality and food service companies), 'technically recyclable' is clearly not enough: recycling does not just need to work in a lab. Instead it should be proven that packaging can be recycled in practice and at scale.

Technical recyclability considers the technical possibility to recycle a package, but does not take into account if the collection, sorting, and recycling of the package happens in practice, at scale, and with reasonable economics (e.g. it could work in a lab or in one (pilot) facility but not be economically viable to replicate at scale). Therefore, such a definition does not directly correlate to what is actually recycled in practice, and it would result in almost all packaging being considered 'recyclable'.

'In practice and at scale' means that there is an existing (collection, sorting and recycling) system in place that *actually* recycles the packaging (it is not just a theoretical possibility) and that covers significant and relevant geographical areas as measured by population size.

It is important to assess the recyclability of each package separately, taking into account its material composition, format design, manufacturing processes, and the most likely way of using, disposing, and collecting it (for more details and examples see note on p. 8 and 9). For example, the fact that PET *bottles* are proven to be recycled in practice and at scale does not necessarily imply that *all* PET packaging formats can be considered recyclable, nor that every single PET bottle is (depending on e.g. labels, glues, inks). Similarly, a large PE film and a small-format PE wrapper might currently have a very different likelihood of being collected and recycled in practice.

Moving towards only using 'recyclable' packaging as described above is a necessary first step, but is one that should happen in conjunction with other efforts to ensure all packaging is actually recycled in practice in every market where it is used.

Definition: Recyclable packaging

A packaging (1) or packaging component (2,3) is recyclable if it's successful post-consumer (4) collection, sorting, and recycling (5) is proven to work in practice and at scale.

Notes
In the context of a 2025 timeframe and the Global Commitment, a package can be considered recyclable if its main packaging components, together representing >95% of the entire packaging weight, are recyclable according to the above definition, and if the remaining minor components are compatible with the recycling process and do not hinder the recyclability of the main components. Otherwise, only the recyclable components of a package (or the recyclable parts of components - see footnote 3) can be counted towards achieving this commitment, and only when other components do not hinder or contaminate their recyclability.

Examples:
- If a bottle and its cap are recyclable, the packaging can be claimed to be recyclable if it has a label (<5% of total weight) that does not hinder the recyclability of the bottle and cap.
- If that same bottle has a label that hinders or contaminates the recycling of the bottle and cap, the entire packaging is non-recyclable.
- If a package has (a) certain component(s) that are not recyclable and that make up >5% of the total packaging weight (e.g. 12%) and that do not hinder or contaminate the recycling of the remaining recyclable components of the package, then only that recyclable part (e.g. 88%) can be counted towards this commitment.

Longer-term, the aim should be for all packaging components (e.g. including labels) to be recyclable according to the above definition.

2. A packaging component is a part of packaging that can be separated by hand or by using simple physical means (ISO 18601), e.g. a cap, a lid and (non in-mould) labels.

3. A packaging component can only be considered recyclable if that entire component, excluding minor incidental constituents (6), is recyclable according to the definition above. If just one material of a multi-material component is recyclable, one can only claim recyclability of that material, not of the component as a whole (in line with US FTC Green Guides14 and ISO 14021).

4. ISO 14021 defines post-consumer material as material generated by households or by commercial, industrial and institutional facilities in their role as end users of the product which can no longer be used for its intended purpose. This includes returns of material from

the distribution chain. It excludes pre-consumer material (e.g. production scrap).

5. Packaging for which the *only* proven way of recycling is recycling into applications that do not allow any further use-cycles (e.g. plastics-to-roads) cannot be considered 'recyclable packaging'.

6. ISO 18601:2013: A packaging constituent is a part from which packaging or its components are made and which cannot be separated by hand or by using simple physical means (e.g. a layer of a multi-layered pack or an in-mould label).

Further explanatory notes:

1. By being based on the principle that recycling needs to work in practice and at scale, the definition requires the entire system to work: material choices, packaging design, the manufacturing process, the most likely way of using, disposing and collecting the packaging, and the availability, compatibility, and performance of infrastructure for collection, sorting and recycling. It also implicitly requires the system to work technically, conveniently (if it works in practice and at scale, it must be convenient enough for actors in the system to participate) and economically (if it works in practice and at scale, it must be that the economics are reasonable and that there are end markets for the resulting material).

2. By being based on the principle that recycling needs to work in practice and at scale, the definition of recyclable packaging allows for innovation. A packaging item that is not currently recyclable could be so in future (e.g. by putting in place effective collection, sorting and recycling technologies at scale).

3. It is important to assess the recyclability of each package separately, taking into account its design, manufacturing processes and most likely way of using, disposing and collecting it, which all have a significant impact on the possibility and probability of the package being recycled in practice. For example:

    - Design: For example choices of materials, the shape and size of the packaging, additives and colourants, glues, inks, caps, labels.

    - Manufacturing process: For example, sometimes additives are added to facilitate the manufacturing process or residual amounts of catalysts or other products end up in the packaging during the manufacturing process.

    - Most likely way of using and disposing: One should assume the most likely way of using and disposing the packaging and not assume unlikely conditions. For example, in most countries one cannot assume that a significant share of households will disassemble packaging before disposing of it. Other questions to consider include: Would the package be disposed most often with or without the label or cap still attached? Would it most likely be disposed of empty and clean, or contaminated with product residues, glue or lid residues?

    - Most likely way of collecting: Is the pack most likely to end up in a collection system for business-to-business bulk materials or in that for household materials? A package could be recycled in practice and at scale in business-to-business but not in business-to-consumer applications (e.g. PE pallet wraps usually end up in different collection systems than PE wraps around consumer products).

4. While the definition does not specify where a package is recycled (i.e. allowing for the export and import of materials), businesses should ensure any exported packaging actually gets recycled before considering the recycling pathway to work in practice.
5. The available technical design-for-recycling guidelines by organisations such as APR, PRE, EPBP, RECOUP and others bring a more technical and in-depth analysis of design for recycling prerequisites. As such, these guidelines are complementary to the 'recyclable' definition of this appendix, and businesses are encouraged to refer to and apply these design-for-recyclability guidelines.

Defining 'in practice' and 'at scale' quantitatively is challenging today because of data availability. However, a few (non-exhaustive) suggested qualitative prerequisites are listed below:

6. There are significant and relevant geographical areas where (formal or informal) collection system(s) are in place that collect for recycling a large share of the packaging put on the market in that region.
7. The package is compatible with the material stream in which it is collected.
8. The package is sorted and aggregated into defined streams for recycling processes and the vast majority of what is collected actually gets recycled.
9. The package can be processed and recycled with commercial recycling processes.
10. A viable end market for the recyclate is available to put the material back in use.

One metric to determine to what extent these prerequisites are in place, and, therefore, if recycling of a certain packaging works in practice and at scale, would be the actual recycling rate. However, data on recycling rates by packaging type is very scarce and, therefore, does not yet allow for a fully quantified metric to be developed.

ANNEXURE B

The major packaging grades currently being recycled in South Africa: (Note that this list will change depending on the constantly evolving Design for Recycling Guidelines.)

- PE-HD blow moulded bottles and drums
- PE-HD films – typically mixed with “mixed and coloured” PE-LD films
- PE-HD injection grade – caps, closures, crates, baskets, bins
- PE-LD films clear and smokey – unprinted
- PE-LD films, mixed and coloured – coloured and/or printed
- PE-LLD stretch- and pallet-wrap
- PET beverage bottles clear & blue – water, cool drink and other beverage bottles – clear and blue tinted
- PET beverage bottles green and brown - water, cool drink and other beverage bottles – green and brown
- PP films – clear, printed
- PP rigid – tubs, jars, coat hangers, caps, closures, vials, over-caps, brushes, etc.
- PP woven – raffia and hessian products
- PS and PS-HI rigid – lids, covers, trays, coat hangers, cutlery, stirrers, display boxes, stationery,
- PS-E and extrusion gassed PS – post consumer tubs, trays and vending cups
- PS-E white post-industrial and pre-consumer foam packaging
- Multi-material packaging where paper, aluminium or fibre board are laminated onto plastic film(s)

ANNEXURE C

Plastic packaging types that are not currently being recycled: (Note that this list will change depending on the constantly evolving Design for Recycling Guidelines.)

- Cosmetic jars
- Flexible tubes for personal care and tooth-paste
- Multi-layer barrier packaging used for dairy products, meat and processed meat
- Multi-layer labels
- Multi-layer lidding films
- Multi-layer PET bottles – some energy drinks, wine and fruit ciders
- PET bottles used for edible oils
- PET jars used for vegetable oils
- PET punnets, trays and blister packs
- PET shrink labels
- PET bottles with PVC shrink-sleeved
- PET Bottles with screen printed labelling
- PET Bottles that are heavily pigmented
- PET Bottles with “PET” shrink sleeves
- Biodegradable packaging, like PLA bottles
- PP films – metallised (example chip packets)
- PS yogurt portion packs with paper labels
- PVC (Industrial) cling-wrap
- PVC bottles
- PVC shrink labels

ANNEXURE D

Material identification codes

MATERIAL	PACKAGING		NON-PACKAGING	
	Material identification code	**Product examples – not all recycled in South Africa**	**Material identification code**	**Product examples – not all recycled in South Africa**
PET Poly(ethylene terephthalate)		Carbonated drink bottles, mineral water bottles, clear bottles; clear jars, clear trays and punnets for fresh produce and meat; clear barrier films; labels, blister packs; strapping tapes. PET can also be coloured and tinted but coloured PET packaging items are less common and are not ideal for recycling. The same code is used for CPET, rPET and APET. It is not for PETG.	>PET<	Carpeting, fibres for apparel and industrial applications; machined engineering components
PE-HD High density polyethylene		Milk bottles, fruit juice bottles, drums, packaging films, carrier type shopping bags, tubs, closures, cosmetic bottles, crates, pallets, bins, jars, closures.	>PE-HD<	Irrigation pipes, shade-cloth, netting, shopping trolleys, refuse- and wheelie bins, high pressure water pipes, optical fibre trunking, cell phone tower "trees", conveyor rollers, ventilation ducting, automotive components
PVC-P Flexible Poly(vinyl chloride)		Cling film, pouches, cap liners, soft see-through bags for toys and bedding.	>PVC-P<	Cable insulation, gum boots, shoe soles, flooring, matting, medical cloth and tubing, tarpaulins, hoses, safety gloves, soft toys, rain wear
PVC-U Rigid Poly(vinyl chloride)		Clear bottles, jars, blister packaging, food packaging, inserts like chocolate trays, tamper evident neck seals, shrink labels, thin film used for sweet wrappers and sweet packets, flower and gift wrapping.	>PVC-U<	Water pipes, high pressure pipes, conduit, profiles, cladding, stationery foils, plumbing, skirting, cornices, trunking, cooling tower packing, window frame profiles, gutters

MATERIAL	PACKAGING		NON-PACKAGING	
	Material identification code	**Product examples – not all recycled in South Africa**	**Material identification code**	**Product examples – not all recycled in South Africa**
PE-LD and PE-LLD Low and Linear low density polyethylene		Packaging films, domestic cling film, stretch wrap and stretch labels, shrink wrap, bags, shrouds, dust covers, form-fill and seal packs, peel-able lids, cosmetic tubes, boutique shopping bags, bubble wrap, foam sheeting.	>PE-LD<	Irrigation pipes, cable insulation, agricultural films, rotational moulded products like tanks and corner protectors
PP Polypropylene		Yoghurt tubs, margarine tubs, ice cream containers, bottles, caps and closures, canisters, strapping tape, crates, buckets, jars, cups and vending cups[4], straws, take-away cutlery[1], punnets. Flexible packaging include wrappers, woven bags, clear, crispy packaging films, metallised (printed) films, non-woven cloth, shrink labels, self-adhesive labels. Laminated reverse printed metallised films consisting of various types of PP are also using the no 5 symbol.	>PP<	Coat hangers, battery cases, reels, automotive components, bumpers, furniture, bowls, carpeting, non-wovens, bristles, hair extensions, appliances like toasters and kettles, toilet seats, ropes, fishing nets, fibres for apparel and industrial applications
PS and PS-HI Polystyrene (general purpose and high impact)		Yoghurt tubs and yogurt portion packs, display boxes, clear trays, punnets and lids for punnets, take-away cutlery[1], stirring sticks, cake and dessert label sticks, vending cups[1], tumblers, vending cup lids, bread tags	>PS<	Coat hangers, toys, cups, plates, audio and video cassette housings, CD covers, housings, cell phone covers, stationery items
PS-E Expanded Polystyrene		Protective packaging, take-away food containers, clamshell packaging, vending cups[1].	>PS-E<	Vending cups[1], insulation panels, suspended ceiling panels, seedling trays
ABS Acrylonitrile Butadiene Styrene		Tubs, portion packs for margarine and jam, take-away cutlery[1], glossy re-usable tubs	>ABS<	Cones, reels, bobbins, TV and other housings, toys, automotive components, telephone casings, signage

[4] Take away cutlery, vending cups and take away food containers can be regarded as packaging as well as non-packaging. South Africa is regarding them nowadays as packaging. Cutlery is made from PP, PS and ABS. Vending cups can be PP, PS or PS-E.

MATERIAL	PACKAGING		NON-PACKAGING	
	Material identification code	**Product examples – not all recycled in South Africa**	**Material identification code**	**Product examples – not all recycled in South Africa**
				
E/VAC Ethylene(Vinyl acetate)		Cap liners	>E/VAC<	Foam insulation for exercise mats, comfort shoes, shoe soles, hand grips, cable insulation
PMMA Poly(methyl methacrylate) or *acrylics*			>PMMA<	Signage, light covers, lenses, number plates, reflectors, automotive components, bath tubs, shower basins, mirrors, salad bowls, kitchen utensils
POM Polyoxymethylene or *acetal*		Aerosol container valves	>POM<	Stationery components, automotive components, curtain accessories, cigarette lighter components, washing peg springs
TPU Polyurethane			>TPU<	Footwear, hoses, mining screens, automotive components
PC Polycarbonate		Re-usable water bottles	>PC<	Lighting, lenses, automotive components, CD's, DVD's, re-usable water fountain bottles, safety glasses, sight glasses, wine- and beer tumblers
PETG Poly(ethylene terephthalate glycol)		Personal care bottles manufactured in smaller volumes and non-symmetrical shapes	>PETG<	Thick sheeting used for structural thermoforming of containers and housings, roof sheeting
PA Polyamide or *nylon*		Oven bags, barrier film in meat- and dairy packaging – PA is seldom used on its own as a packaging material.	>PA< >PA GF15<	Automotive components, fishing gut, cable ties, fibres for apparel, zips

MATERIAL	PACKAGING		NON-PACKAGING	
	Material identification code	**Product examples – not all recycled in South Africa**	**Material identification code**	**Product examples – not all recycled in South Africa**
Multi-layer PET and PA		Barrier PET bottles used for oxygen sensitive products like wine, beer and energy drinks		
Multi-layer PE and PA		Barrier films used as oxygen and moisture barriers; these materials often has more than two materials but the two most prominent polymers are polyethylene and nylon		
Multi-layer PE and E/VAL		Often used in multi-layer oxygen sensitive tubs, punnets and tubes		

ANNEXURE E

Additional instructions

Special instruction	Example of its application
Empty and replace cap	• On fruit juice bottles
Empty contents and re-attach closure.	• Oil based contents currently sent to landfill so no need to wash i.e. cooking oils, peanut butter • The closure is recycled. PP closures are recycled and the jars have large closures
Recycle if clean & dry	• Specific to microwaveable meals – usually PP
Replace cap	• On glass bottles/containers
Separate lidding	• On ready meals as film could be multilayer PE and not PP.
Separate plastic film	• On boxes of chocolates that have plastic wrap on outside
Separate plastic window	• On gift boxes with plastic windows • Need to state that box is recycled and window not
Separate pump	• On household cleaners with pump action nozzles
Separate shrink sleeve	• The full body labels on plastic bottles
Rinse before recycling	• On recyclable containers that are eaten out of, e.g. yoghurt tubs
Flatten and replace cap	• Liquid carton packaging i.e. Tetrapak, Nampak

SAPRO has suggested that the wording 'replace' rather be 'reattach'. Polyco has commented that that if the closure is re-attached on oil based contents packaging then it will not be recycled. It was suggested that this wording be "Empty contents and do not re-attach closure'.