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Specifications for coloured high density polyethylene (HDPE) flake

These generic specifications have been prepared to assist Australian secondary plastics treatment facilities produce coloured HDPE hot washed flake for use in compounding and manufacturing in Australia and overseas. These specifications are geared to using ‘jazz’ multi-coloured HDPE to make quality recycled HDPE (rHDPE). These specifications are voluntary.

There is diversity in plastics processing plant capacity in Australia. Some include sorting, hot wash or cold wash, flake and compounding, whereas some specialise in compounding and pelletising for customers making packaging and products. All companies should seek details from their customers on their specific requirements. The test methods in the table below are included for reference and other test methods can be used.

These specifications have been developed in consultation with experts in the sector based on national and international trends on markets, price, quality, equipment and processes. We acknowledge Plastics Recyclers Europe for the generic template, specifications from The Netherlands, and the contribution of MRF operators, plastics processors and other industry experts in helping prepare this generic specification.

Rigid HDPE natural and colour

HDPE is best separated into two streams:

1. Natural food grade drink bottles (milk, cream, juice and water).
2. All other colours and formats (including natural non-food grade bottles).

Only natural HDPE drink bottles can be reprocessed back into high value food grade HDPE. Colour HDPE and natural non-drink bottle HDPE cannot be reprocessed for food applications and are generally processed to make pipe and similar robust products. Sorters and processors are encouraged to keep the two streams separate to achieve higher quality and value.

These specifications are for coloured and mixed HDPE. Use the other HDPE specifications within this series for [food grade natural HDPE bottles](https://anzpacplasticspact.org.au/wp-content/uploads/2021/06/Specifications-for-natural-HDPE-flake-for-food-grade-applications.docx).

HDPE packaging design

For HDPE packaging design the following resources are available:

* [Quickstart Guide to Designing for Recyclability: Rigid HDPE Packaging](https://documents.packagingcovenant.org.au/public-documents/Quickstart%20Guide%20-%20Designing%20for%20Recyclability;%20HDPE%20Packaging)
* [Action Plan for Problematic and Unnecessary Single-Use Plastic Packaging](https://documents.packagingcovenant.org.au/public-documents/Action%20Plan%20for%20Problematic%20and%20Unnecessary%20Single-Use%20Plastic%20Packaging)
* [Sustainable Packaging Guidelines](https://documents.packagingcovenant.org.au/public-documents/Sustainable%20Packaging%20Guidelines%20%28SPGs%29)

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Instruction: Enter responses into the relevant fields as appropriate to your operations, outputs and customers. Some parts of these specifications are more important than others for entry of data for compliance. For example, contamination and colour are more important than density of flake in the bag. Testing methods are suggested (from EU templates); specify if using alternative test methods particularly for export. Testing may not be a required element for Australian customers, but may be required for export licences.

|  |
| --- |
| Supplier information |
| Company name |  |
| Company address |  |
| Additional sorting information |  |
| Date |  |

|  |
| --- |
| Specifications for coloured high density polyethylene (HDPE) flake |
|  | Enter data & response here | Good practice / description of options for responses |
| Characteristics |  |
| Product name  |  | HDPE flake (hot caustic wash or cold wash). |
| Product reference |  | Number xxx. |
| Origin of the materials |  | Post-consumer kerbside.Container Deposit Scheme (CDS).Post industrial.Pre-consumer industrial. |
| Suitable applications for treated material |  | Non-food grade packaging and products.Non-packaging applications. |
| Colour |  | Describe flake colour (light to dark, transparent and opaque and % black). |
| Technical Properties | Unit | Optional test methods |
| Bulk density |  | 0.950 – 0.965 g/cm3  | ISO 60 |
| Melting temperature range |  | 245 – 255 °C | ISO 113547-3:2016 |
| Melt flow rate |  | g/10minSpecify whether tested with 2.16 kg, 5 kg and/or 21.6 kg weight - 2.16 kg the most useful. | EN ISO 1133-1:2011 |
| Fines |  | ≤ 1.00 weight % | Annex A of EN 15348:2007 |
| Flake size (average) |  | 98% 8-12 mm | EN 15345:2007 |
| Flake distribution (min – max) | \_\_\_\_\_ % < 1mm\_\_\_\_\_ % ≥ 12mm | <1mm = 0.5 wt% max.≥ 12mm = 0.1 wt%  | EN 15345:2007 |
| Moisture |  | ≤ 1.00 % or lower ie ≤ 0.7 weight % | Moisture Analyser / infrared heater or TGA EN ISO 11358-1:2014 |
| Impurities | Impurities visible in flake | Visual inspection |
| Total impurities |  | ≤ 80 ppm |  |
| PVC content |  | ≤ 50 ppm | Annex A of ISO 12418-2:2012 or Annex D of DIN EN 15348 |
| Other plastics (PET/PS) content |  | ≤ 25 ppm | Annex A of ISO 12418-2:2012 or Annex D of DIN EN 15348 |
| Metal content |  | ≤ 20 ppm | Annex A of ISO 12418-2:2012 or Annex D of DIN EN 15348 |
| Paper content |  | 0 ppm | Annex A of ISO 12418-2:2012 or Annex D of DIN EN 15348 |
| Wood content |  | 0 ppm | Annex A of ISO 12418-2:2012 or Annex D of DIN EN 15348 |
| Other contaminants |  | ≤ 10 ppm | Annex A of ISO 12418-2:2012 or Annex D of DIN EN 15348 |
| PP (max %) |  | ≤ 10% |  |
| Appearance |  | Describe if the flake has a normal appearance | Visual inspection |
| Food contact | Material not suitable for food grade applications. |
| Transport |  |
| Packaging | In PP bulk bags, ID marked with batch number, source, supply chain, production date. |
| Transport/contract documents | The documents will be provided upon delivery stating quantity, supplier, source, bag IDs.  |
| Truck load | Tarpaulin truck 17-20 tonne load. |

Disclaimer

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