

Universal Multiple-Octet Coded Character Set  
International Organization for Standardization  
Organisation internationale de normalisation  
Международная организация по стандартизации

**Doc Type:** Working Group Document

**Title:** Proposal to add 8 recycling characters to the UCS

**Source:** Michael Everson and Asmus Freytag

**Status:** Expert Contribution

**Action:** For consideration by JTC1/SC2/WG2 and UTC

**Date:** 2000-08-27

This document is based on the proposal submitted by Michael Everson on 1997-12-08 as JTC1/SC2/WG2 N1661. It is a revision of N1661 based on further study, and contains the proposal summary.

## A. Administrative

### 1. Title

Proposal to add 8 recycling characters to ISO/IEC 10646.

### 2. Requester's name

Michael Everson and Asmus Freytag.

### 3. Requester type

Expert contribution.

### 4. Submission date

2000-08-27.

### 5. Requester's reference

N1661: Proposal to encode two ecological symbols in ISO/IEC 10646:

<http://www.dkuug.dk/JTC1/SC2/WG2/docs/n1661.htm>

### 6a. Completion

This is a complete proposal.

### 6b. More information to be provided?

No.

## B. Technical – General

### 1a. New script? Name?

No.

### 1b. Addition of characters to existing block? Name?

Yes. Miscellaneous Symbols.

### 2. Number of characters

8.

### 3. Proposed category

Category A.

### 4. Proposed level of implementation and rationale

Level 1. Base characters with no diacritics.

### 5a. Character names included in proposal?

Yes.

### 5b. Character names in accordance with guidelines?

Yes (see below).

**5c. Character shapes reviewable?**

Yes (see below).

**6a. Who will provide computerized font?**

Michael Everson, EGT.

**6b. Font currently available?**

Yes.

**6c. Font format?**

TrueType.

**7a. Are references (to other character sets, dictionaries, descriptive texts, etc.) provided?**

Yes (see below).

**7b. Are published examples (such as samples from newspapers, magazines, or other sources) of use of proposed characters attached?**

Yes (see below).

**8. Does the proposal address other aspects of character data processing?**

No.

## **C. Technical – Justification**

**1. Contact with the user community?**

Almost everyone is a part of the user community.

**2. Information on the user community?**

Recyclers, preparers of recycling information, general educational use, etc.

**3a. The context of use for the proposed characters?**

They are used on packaging of various kinds to identify the composition of the packaging, and on associated literature dealing with the recycling of such material.

**3b. Reference**

For instance, <http://www.city.grande-prairie.ab.ca/grnthink/plastics.htm>.

**4a. Proposed characters in current use?**

Yes.

**4b. Where?**

On the web, in publishing, in education.

**5a. Characters should be encoded entirely in BMP?**

Yes.

**5b. Rationale**

They are symbols of great utility.

**6. Should characters be kept in a continuous range?**

Yes, if possible.

**7a. Can the characters be considered a presentation form of an existing character or character sequence?**

No.

**8a. Can any of the characters be considered to be similar (in appearance or function) to an existing character?**

No.

**8b. Where?**

See examples below.

**9a. Combining characters or use of composite sequences included?**

No.

**9b. List of composite sequences and their corresponding glyph images provided?**

No.

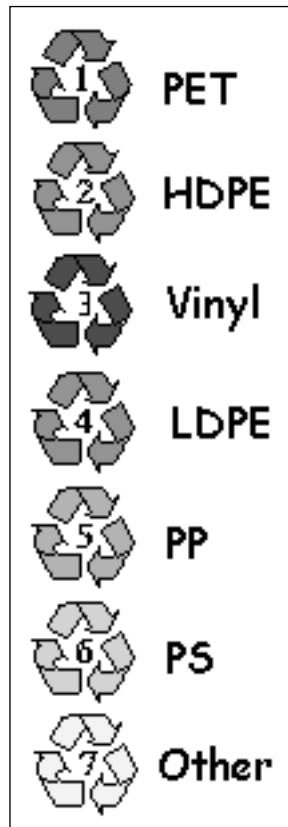
**10. Characters with any special properties such as control function, etc. included?**

No.

## D. Proposal

During discussions of N1661 held at Meeting 34 in Redmond, WG2 requested further information and justification about the implementation of the RECYCLING SYMBOL. We have found that there are eight different recycling symbols in use. The use of these characters in recycling instructions is common.

The first of these is a generic symbol, an example of which is given in the illustration on the right. This comes from a waste collection calendar for 2000–2001, titled *Garbage, Recycling, and Yard Waste* and circulated by Seattle Public Utilities to its customers. In the centre of the illustration the UNIVERSAL RECYCLING SYMBOL is used as a bullet to emphasize the text. The glyph of this generic symbol has nothing in its centre.



The example on the left was found as an illustration on a web page explaining the recycling of different types of plastics. Here the number of each type is shown centred inside the arrows.

In text, the numbered characters are used in recycling instructions such as “No plastics marked with  $\triangle_{6}$ .” or “Look for the recycling symbol  $\triangle_{7}$  on the package.”

The following text comes from one of the *Solid Waste Management* web pages maintained by the City of Grande-Prairie, Alberta, Canada. It explains the nature and use of each of the symbols.

“There are many different kinds of plastics and each type has properties which make it suitable for different uses. To make plastic recycling economically feasible plastics must be separated by type before they are recycled. Therefore there is a system for identifying different kinds of plastics.

“This identification system is a number in the triangular recycling symbol which is found on a plastic product (usually on the bottom). This number (from 1 - 7)

identifies what kind of plastic the product is made from. Numbers 1-6 are types of plastics and the seventh category is an “other” category.

“The following chart outlines the six types of plastics, what they are used for, and the more common uses for the product after it has been recycled.

$\triangle_{1}$  **Polyethylene Terephthalate (PET)**. *Common Uses:* soft drink bottles, water bottles. *Recycled Product Uses:* soft drink and juice bottles, deli and bakery trays, carpets, clothing and textiles.

$\triangle_{2}$  **High Density Polyethylene (HDPE)**. *Common Uses:* milk, juice and water containers, household chemical and detergent bottles. *Recycled Product Uses:* bottles for laundry products and motor oil, recycling bins, agricultural pipe.

**Recycling Collection Every Other Week**





- Recycling and yard waste will be collected on the same day of the week as garbage, but on alternating weeks—**recycling one week, yard waste the next. (Check the calendar for your first collection day in April.)**
- **Beginning in April**, you can recycle additional materials:
  - $\triangle_{1}$  Clean milk cartons, juice boxes, plastic food tubs.
  - $\triangle_{2}$  Clean, dry plastic bags (stuffed into one plastic bag and **tied securely**). No loose bags.


Please check your cart for details.


- **Combine** the new materials with newspapers, mixed paper, cardboard, tin and aluminum cans, plastic bottles and ferrous metals (that stick to a magnet) in your cart.
- Put **glass** bottles and jars in one (or more) of your green and yellow recycling bins. Place the bin inside the recycling cart at the top or next to the cart.



 **Vinyl (polyvinyl chloride-PVC).** *Common Uses:* plastic films, clean plastic containers. *Recycled Product Uses:* fencing, pipes and non-food bottles.

 **Low Density Polyethylene (LDPE).** *Common Uses:* containers that require flexibility, grocery and garbage bags, shrink wrap and stretch film. *Recycled Product Uses:* bags, shrink film and disposable diapers.

 **Polypropylene (PP).** *Common Uses:* caps and lids, ketchup and syrup bottles, containers for many dairy products. *Recycled Product Uses:* automobile parts, carpets, battery casings, textiles, industrial fibers and films for packaging.

 **Polystyrene (PS).** *Common Uses:* meat trays, egg cartons, coffee cups, and packaging. *Recycled Product Uses:* office accessories, videocassettes and cases, and insulation board.”

A screen-shot of the Grande-Prairie web site is given at the end of this document.

In some jurisdictions there are legal requirements for the display of the UNIVERSAL RECYCLING SYMBOL. Encoding of this character in the UCS would, obviously, facilitate user compliance with such regulations.

<p><b>Missouri Revised Statutes 1999, Chapter 260. Environmental Control. Section 260.262.</b></p> <p>Retailers of lead-acid batteries, duties--notice to purchaser, contents.</p> <p>260.262. A person selling lead-acid batteries at retail or offering lead-acid batteries for retail sale in the state shall:</p> <p>[...]</p> <p>(2) Post written notice which must be at least four inches by six inches in size and must contain <u>the universal recycling symbol</u> and the following language:</p> <p>(a) It is illegal to discard a motor vehicle battery or other lead- acid battery;</p> <p>(b) Recycle your used batteries; and</p> <p>(c) State law requires us to accept used motor vehicle batteries, or other lead-acid batteries for recycling, in exchange for new batteries purchased; and</p> <p>(3) Manage used lead-acid batteries in a manner consistent with the requirements of the state hazardous waste law.</p>	<p><b>Minnesota Statutes 1999, 325E.11 Collection facilities; notice.</b></p> <p>[...]</p> <p>(b) A notice under paragraph (a) shall be posted on or adjacent to the motor oil and motor oil filter displays, be at least 8-1/2 inches by 11 inches in size, contain <u>the universal recycling symbol</u> with the following language:</p> <p>(1) "It is illegal to put used oil and used motor oil filters in the garbage.";</p> <p>(2) "Recycle your used oil and used motor oil filters."; and</p> <p>(3)(i) "There is a free collection site here for your used oil and used motor oil filters.";</p> <p>(ii) "There is a free collection site for used oil and used motor oil filters located at (name of business and street address).";</p> <p>(iii) "For the location of a free collection site for used oil and used motor oil filters call (toll-free phone number)."; or</p> <p>(iv) "Here is a list of free collection sites for used oil and used motor oil filters."</p> <p>[...]</p>
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## Glyphs

There is considerable variation in the actual shape of the arrows one finds used for this symbol. In the fonts here, the UNIVERSAL RECYCLING SYMBOL is shown with its folded arrows, and the symbols with digits in them are shown with the simpler arrows which they generally have when moulded on plastic products.

The repertoire requested is given here with proposed code positions:

	2672	UNIVERSAL RECYCLING SYMBOL
	2673	RECYCLING SYMBOL FOR TYPE-1 PLASTICS
	2674	RECYCLING SYMBOL FOR TYPE-2 PLASTICS
	2675	RECYCLING SYMBOL FOR TYPE-3 PLASTICS
	2676	RECYCLING SYMBOL FOR TYPE-4 PLASTICS
	2677	RECYCLING SYMBOL FOR TYPE-5 PLASTICS
	2678	RECYCLING SYMBOL FOR TYPE-6 PLASTICS
	2679	RECYCLING SYMBOL FOR TYPE-7 PLASTICS

Alternate names worth considering might be:

- 2673    ♻️ RECYCLING SYMBOL FOR POLYETHYLENE TEREPHTHALATE
- 2674    ♻️ RECYCLING SYMBOL FOR HIGH-DENSITY POLYETHYLENE
- 2675    ♻️ RECYCLING SYMBOL FOR POLYVINYL CHLORIDE
- 2676    ♻️ RECYCLING SYMBOL FOR LOW-DENSITY POLYETHYLENE
- 2677    ♻️ RECYCLING SYMBOL FOR POLYPROPYLENE
- 2678    ♻️ RECYCLING SYMBOL FOR POLYSTYRENE
- 2679    ♻️ RECYCLING SYMBOL FOR OTHER PLASTICS

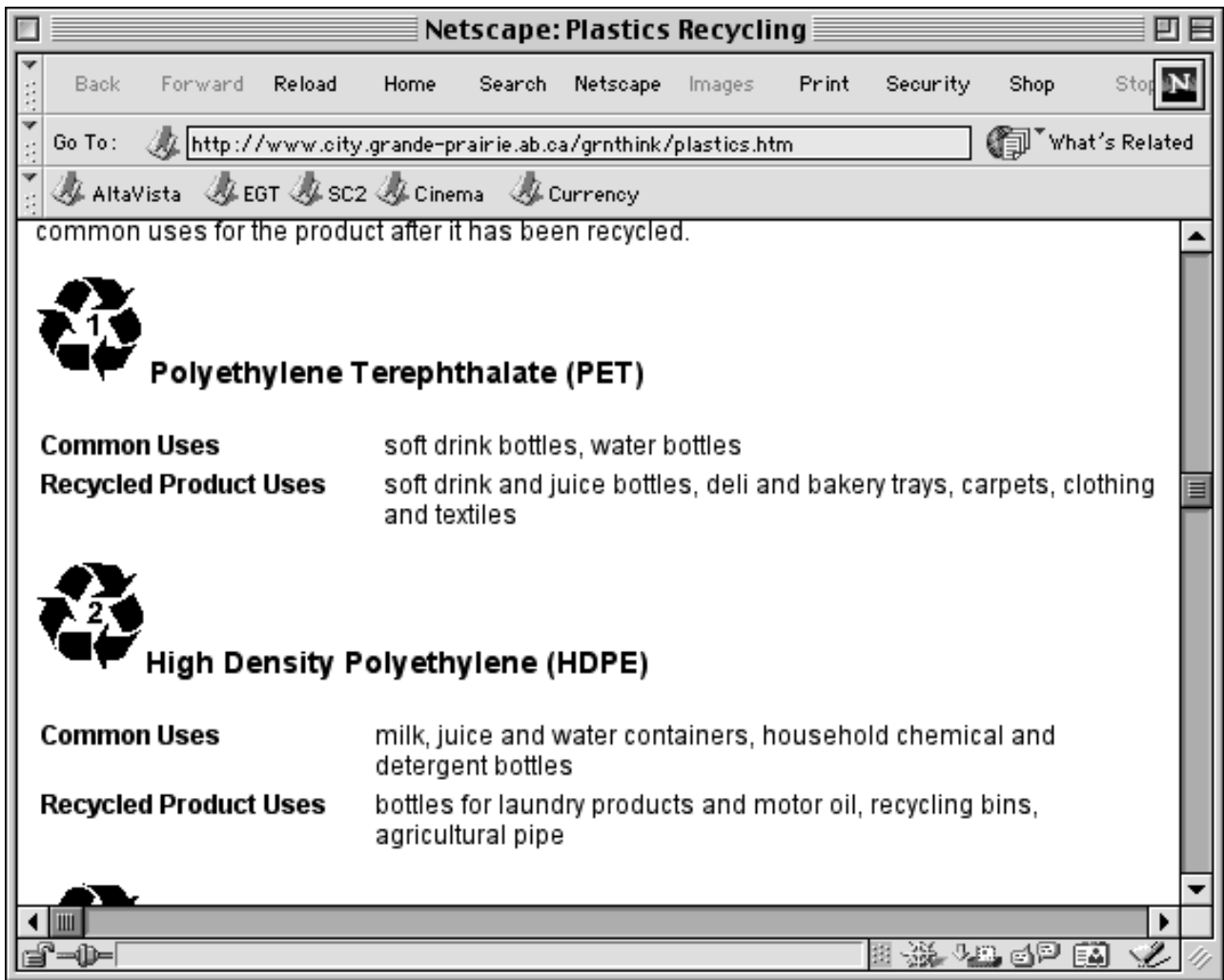
## Unicode Character Properties

Spacing symbols, category “So” (Symbol, Other), canonical combining class “0” (Spacing), bidi category “ON” (Other Neutrals), mirrored “N” (No).

2672-2679

Note that 2673-2679 should not have a numeric property.

Example of numbered RECYCLING SYMBOLS used in text from the City of Grande-Prairie.



Example of the UNIVERSAL RECYCLING SYMBOL used in text from the University of Pittsburgh.

