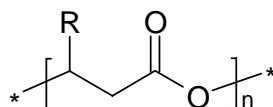


POLYHYDROXYALKANOATES

Polyhydroxyalkanoates are biodegradable polymers made by fermenting particular micro-organisms. They have the general structure:



where R = alkyl.

The commonest types are poly(3-hydroxybutyrate) (R = CH₃), also known as polyhydroxybutyric acid; poly(3-hydroxyvalerate) (R = C₂H₅), also known as polyhydroxyvaleric acid; and their copolymers.

Polyhydroxybutyrate (PHB) containing no other repeat units is indexed as R24028 Polyhydroxybutyric acid (in the Natural Polymers hierarchy), and similarly polyhydroxyvalerate (PHV) is indexed as R24090 Polyhydroxyvaleric acid.

A copolymer containing the PHB unit *and another* repeat unit should be indexed as G3758 Other natural polymer, and the repeat unit(s) aspected — and similarly for a polymer containing the PHV repeat unit with another repeat unit.

For a general polyhydroxyalkanoate, where the precise structure is unknown, or which has a Markush structure where PHB or PHV repeat units may optionally be present by themselves or with other repeat units, it is necessary to go to the top of the hierarchy and index:

P0599 Natural polymer general
D01 Organic
D11 Saturated aliphatic
D50 No unsaturation
D63 Ester
F89 Monocarboxylic ester
+ carbon counts where known

The micro-organisms used to make polyhydroxyalkanoates can be indexed as:

C044 Biological catalyst
C282 Catalyst for natural polymer production.

The production process is indexed as L2404 Natural polymer production. Further, more specific Chemical process codes such as L2186 Esterification should NOT be indexed, neither should any ingredients of the microbial "broth" be indexed as polymer formers. They should be regarded merely as bug food.

Polyhydroxyalkanoate-type polymers produced by *non-biochemical* methods should be indexed as P1978 Saturated polyesters, and Polymer Former/Catalyst/Chemical Process codes applied as for any other condensation polyester.