CLAIMS

1. A process for preparing at least one nitrile of general formula I

$$(NC)_v\text{-}R_1\text{-}(CN)_w$$

and at least the cyclic imides 3-methylglutarimide and 3-ethylsuccinimide, by reaction between at least one carboxylic acid of general formula II

$$(HOOC)_x\text{-}R_1\text{-}(COOH)_y$$

and a mixture N of dinitriles comprising 2-methylglutaronitrile (MGN), 2-ethylsuccinonitrile (ESN) and adiponitrile (AdN),

with

x, y is equal to 0 or 1 with (x+y) equal to 1 or 2

v, w is equal to 0 or 1 with (v+w) equal to 1 or 2

R_1 represents a linear or branched, saturated or unsaturated hydrocarbon-based group which may comprise heteroatoms, comprising:

- from 4 to 34 carbon atoms when (x+y) is equal to 2,
- from 2 to 22 carbon atoms when (x+y) is equal to 1.

2. The process as claimed in claim 1, characterized in that the mixture N of dinitriles is a mixture resulting from the process for producing adiponitrile by double hydrocyanation of butadiene.

3. The process as claimed in claim 1 or 2, characterized in that the mixture N of dinitriles has the following composition by weight:

2-Methylglutaronitrile: between 70% and 95%, preferably between 80% and 85%,

2-Ethylsuccinonitrile: between 5% and 30%, preferably between 8% and 12%,

Adiponitrile: between 0% and 10%, preferably between 1% and 5%,

the rest to 100% corresponding to various impurities.

4. The process as claimed in one of the preceding claims, characterized in that the compound of formula II is derived from a renewable matter of vegetable or animal origin.

5. The process as claimed in claim 4, characterized in that the compound of formula II is chosen from caproic acid, caprylic acid, pelargonic acid, capric acid, lauric acid, myristic acid, palmitic acid, stearic acid, arachidic acid, adipic acid, heptanedioic acid,

octanedioic acid, azelaic acid, sebacic acid, or undecanedioic acid, dodecanedioic acid, brassylic acid, tetradecanedioic acid, hexadecanedioic acid, octadecanedioic acid, eicosanedioic acid, docosanedioic acid, octadecenoic acid, oleic acid, ricinoleic acid, erucic acid, linoleic acid, linolenic acid and fatty acid dimers containing 36 carbon atoms, and terephthalic acid.

6. The process as claimed in one of the preceding claims, characterized in that it comprises a step of recovering, on the one hand, at least the nitrile and, on the other hand, at least the cyclic imides 3-methylglutarimide and 3-ethylsuccinimide, by separation of the compounds from the reaction medium.

7. The process as claimed in claim 6, characterized in that at least the recovered nitrile is hydrogenated so as to form the corresponding amine.

8. The process as claimed in claim 6 or 7, characterized in that at least the recovered cyclic imides 3-methylglutarimide and 3-ethylsuccinimide are reacted with an alcohol so as to form the corresponding diester.

CLAIMS

1. A process for preparing a nitrile of general formula I
$(NC)_v—R_1—(CN)_w$ (I)
and cyclic imides 3-methylglutarimide and 3-ethylsuccinimide, by reacting a carboxylic acid of general formula II
$(HOOC)_x—R_1—(COOH)_y$ (II)
and a mixture N of dinitriles comprising 2-methylglutaronitrile (MGN), 2-ethylsuccinonitrile (ESN) and adiponitrile (AdN),
wherein
x, y are equal to 0 or 1 with (x+y) equal to 1 or 2,
v, w are equal to 0 or 1 with (v+w) equal to 1 or 2, and
R1 represents a linear or branched, saturated or unsaturated hydrocarbon-based group which can comprise heteroatoms, comprising:
from 4 carbon atoms to 34 carbon atoms when (x+y) is equal to 2, and
from 2 carbon atoms to 22 carbon atoms when (x+y) is equal to 1.

2. The process as defined in claim 1, wherein the mixture N of dinitriles is a mixture resulting from the process for producing adiponitrile by double hydrocyanation of butadiene.

3. The process as defined in claim 1 or 2, wherein the mixture N of dinitriles has the following composition by weight:
2-Methylglutaronitrile from 70% to 95%,
2-Ethylsuccinonitrile from 5% to 30%, and
Adiponitrile from 0% to 10%, and
wherein the amount remaining after subtracting the sum of the wt% of the three compounds from 100% is composed of various impurities.

4. The process as defined in claim 1or 2, wherein the compound of formula II is derived from a renewable matter of vegetable or animal origin.

5. The process as defined in claim 4, wherein the compound of formula II is selected from the group consisting of a caproic acid, a caprylic acid, a pelargonic acid, a capric acid, a lauric acid, a myristic acid, a palmitic acid, a stearic acid, an arachidic acid, an adipic acid, a heptanedioic acid, an octanedioic acid, an azelaic acid, a sebacic acid, an undecanedioic acid, a dodecanedioic acid, a brassylic acid, a tetradecanedioic acid, a hexadecanedioic acid, an octadecanedioic acid, an eicosanedioic acid, a docosanedioic acid, an octadecenoic acid, an oleic acid, a ricinoleic acid, an erucic acid, a linoleic acid, a linolenic acid and a fatty acid dimer having 36 carbon atoms, and a terephthalic acid.

6. The process as defined in claim 1 or 2, wherein the process comprises recovering a nitrile and a cyclic imides 3-methylglutarimide and 3-ethylsuccinimide by separation of the compound from the reaction medium.

7. The process as defined in claim 6, wherein the recovered nitrile is hydrogenated so as to form the corresponding amine.

8. The process as defined in claim 6, wherein the recovered cyclic imides 3-methylglutarimide and 3-ethylsuccinimide are reacted with an alcohol so as to form the corresponding diester.