According to the present ~~invention~~ disclosure there is provided a biodegradable cigarette filter tow comprising composite filaments of cellulose and cellulose acetate.

In accordance with one aspect, there is provided a biodegradable cigarette filter tow comprising composite filaments of cellulose and cellulose acetate, wherein the composite filaments are either fibres spun from a dope comprising cellulose and cellulose acetate or shredded films cast from a similarly constituted dope.

In accordance with one embodiment, there is provided a filter tow as disclosed herein, further comprising one or more further thermoplastic materials.

In accordance with one embodiment, there is provided a filter tow as disclosed herein, wherein the further thermoplastic material is selected from one or more of PHB, PHVB, polyacrylonitrile (PAN), poly-2-hydroxyethylmethylacrylate (PHEMA), polyvinylalcohol (PVA), polyaniline and polyethylene glycol.

In accordance with one embodiment, there is provided a filter tow as disclosed herein, wherein the weight ratio of cellulose to cellulose acetate is from 10:90 to 90:10.

In accordance with one embodiment, there is provided a filter tow as disclosed herein, wherein the ratio of cellulose to cellulose acetate is from 20:80 to 80:20.

In accordance with one embodiment, there is provided a filter tow as disclosed herein, wherein the ratio of cellulose to cellulose acetate is from 30:70 to 70:30.

In accordance with one embodiment, there is provided a filter tow as disclosed herein, further comprising one or more plasticisers.

In accordance with one embodiment, there is provided a filter tow as disclosed herein, further comprising a catalyst promoting oxidative degradation of the filter tow.

In accordance with one embodiment, there is provided a filter tow as disclosed herein, further comprising one or more lubricants to reduce electrostatic charge on the tow.

In accordance with another aspect, there is provided a cigarette filter comprising the cigarette filter tow as disclosed herein encased in a tipping wrapper.

In accordance with another aspect, there is provided a cigarette comprising a smokable substance and a cigarette filter as disclosed herein.

In accordance with another aspect, there is provided a process for manufacturing a cigarette filter tow as disclosed herein, comprising providing a solution dope comprising a blend of cellulose and cellulose acetate in an ionic liquid or in *N*-methylmorphilone-*N*-oxide (NMMO), and spinning or casting the blend into a protic solvent to generate fibres or films, and converting the fibres or films into cigarette filter tow.

In accordance with one embodiment, there is provided a process for manufacturing a cigarette filter tow as disclosed herein, wherein the dope further comprises an aprotic solvent to aid dissolution of the cellulose and/or cellulose acetate.

In accordance with one embodiment, there is provided a process for manufacturing a cigarette filter tow as disclosed herein, wherein the aprotic solvent comprises one or more of DMSO, DMF, THF or dioxane.

Cellulose and cellulose acetate are typically cast in the form of fibres or films. Either form of casting is suitable for preparing the biodegradable cigarette filter tows of the ~~invention~~ disclosure. When cast in the form of films it is necessary then to shred the resulting film to produce material suitable for cigarette filter tows. Preferred filter tows in accordance with the ~~invention~~ disclosure comprise fibres spun from a coagulated solution of cellulose and cellulose acetate.

Reference herein to composite filaments of cellulose/cellulose acetate shall be understood to mean either fibres spun from a dope comprising cellulose and cellulose acetate, or shredded films cast from similarly constituted dope.

We have found that composite filaments of cellulose/cellulose acetate have significantly greater biodegradability than equivalent filaments comprising only cellulose or cellulose acetate. Without wishing to be bound by any such theory, we believe that the presence of acetate in the composite may disrupt the crystallinity of the cellulose, causing it to biodegrade more rapidly than cellulose itself.

Conventionally, cellulose is cast or spun from viscose, and it is difficult or impossible to cast or spin cellulose acetate from the same blend because of the likelihood of hydrolysis of the cellulose acetate under such conditions. Conversely, cellulose acetate is conventionally cast or spun from acetone and

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