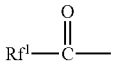
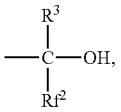
The present invention also encompasses the process for preparing a novel norbornene having a ketone structure represented by:



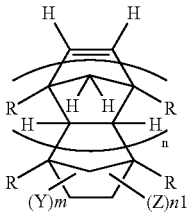
and the process for preparing a novel norbornene having:



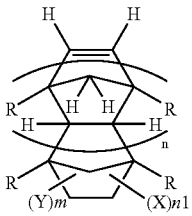
wherein R^3 is H or a hydrocarbon group; Rf^2 is as defined above.

Namely, the present invention provides the process for preparing the above-mentioned various fluorine-containing norbornenes at high yield by reacting a norbornene having C═O group which can be easily synthesized at high yield by the Diels-Alder reaction, with a fluoroalkylation agent.

The first of the preparation processes of the present invention relates to the process for preparing the novel fluorine-containing norbornene derivative having a fluorine-containing ketone structure which is represented by the formula (2):

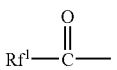


by reacting the norbornene derivative having carboxylic acid ester or acid halide which is represented by the formula (1):



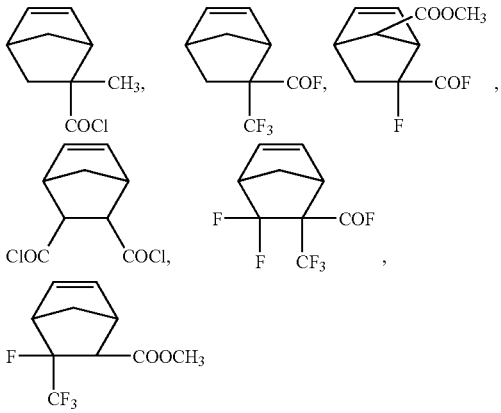
with a fluoroalkylation agent.

Namely, the group represented by:



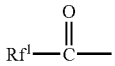
can be introduced by reacting a fluoroalkylation agent (Rf^1) in an amount equivalent to the weight of carboxylic acid ester or acid halide of the formula (1) and thereby the novel norbornene compound can be prepared.

Examples of the norbornene derivative (1) as a starting material are preferably:

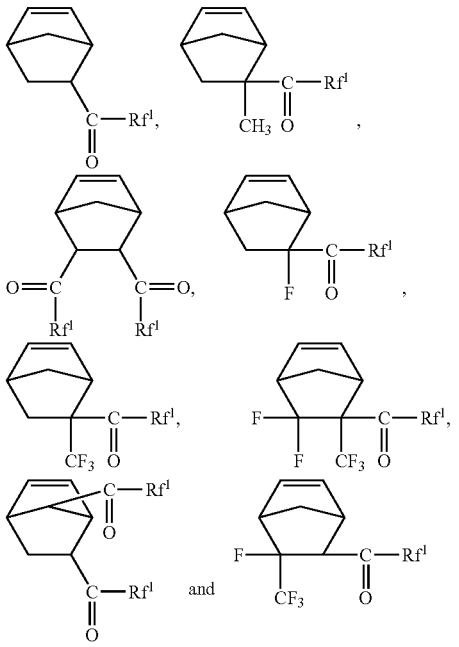


and the like.

According to the preparation process of the present invention, the ketone structure:



corresponding to the fluoroalkylation agent (Rf^1) to be reacted with the norbornene derivative mentioned above as a starting material can be introduced. Concretely there can be obtained the following norbornene derivatives.



X is selected from alkyl esters such as —$COOCH_3$, —$COOC_2H_5$ and —$COOC(CH_3)_3$ and acid halides, for example, —COF, —COCl and —COBr.