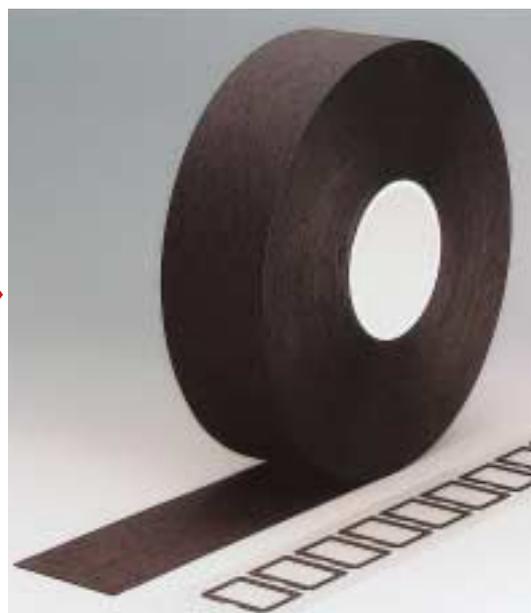


Environmental Activities: SCF[®] (Super Clean Foam)



Development of environment-friendly products

Supporting green procurement systems by making non-halogen, non-phosphorous sealing materials available to our customers



Eliminated Use of Environment-polluting Halogen

Affront the enactment of the Green Purchasing Law and growing user awareness of the environment, manufacturers of electronic devices such as personal computers and cellular phones are working to reduce the environmental load of their products. One approach they have taken is to review the materials that they use which contain toxic chemicals. In response to these needs, Nitto Denko developed the first foamed seal in the world that does not contain halogen: SCF[®], or Super Clean Foam. Foam sealing is used to fill gaps inside electric devices so as to prevent dust infiltration and dampen shock and

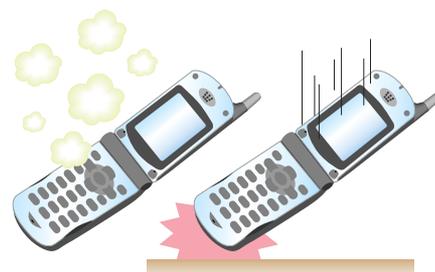
vibrations. Because these applications required high inflammability, halogen flame retardants were used. However, because halogen generates dioxins when burned and these dioxins can contaminate soil, it became necessary for manufacturers to reduce its use.

Minimal Generation of Toxic Gas

Our newly developed SCF[®] is not only highly inflammable (UL94 HF1) but, because it uses a highly pure thermoplastic resinous foam, it greatly reduces the generation of gases released by impurities that can have an aversive effect on electronic components. Moreover, because the air bubbles are a tiny 80 μm in diameter, SCF[®] can be processed to a thickness of 0.5 mm, making it applicable with electronic

devices where the trend continues toward smaller and lighter weight products.

- Manufactured at the Toyohashi plant



What is Super Clean Foam?
Super Clean Foam prevents dust from infiltrating cellular phones, protects components against shocks endured when phones are dropped or otherwise impacted, and contributes to the reduction of environmental load when discarded.

Our Activity



Repeated trial and error ultimately produced satisfying results.

Front row from left
Production Engineering Development Center Takayuki Yamamoto
Tape-Material Business Sector Tomohiro Taruno
Back row from left
Industrial Products Div. Nobuyuki Takahashi
Industrial Products Div. Makoto Saito
Industrial Products Div. Katsuhiko Tachibana

Since 1998 when concern for the environment started to grow, we began researching a non-halogen, non-phosphorous foam. At present, there are only a few ways of ensuring inflammability without the use of halogen or phosphorous. Other types of flame-retarding agents that work like these often hinder foaming, so we investigated combinations of various materials. Moreover, because the process had no precedent, there was little to serve as an example both from within the company and from outside, so research moved forward with the painstaking process of repeated trial and error. In the end, we came up with the world's first non-halogen, non-phosphorous foam and it attained the highest

inflammability grade, UL94 HF1. Moreover, this material is highly recyclable and studies are currently underway in that regards. Strongly believing that society will welcome products that offer a low environmental load, Nitto Denko will continue working hard to make further improvements and develop still other products.



Recycled pellets