TPE Materials in POU Coolers.

TECHNICAL BULLETIN

OAS0042A

There are potential issues with TPE (thermoplastic elastomer) materials and their ability to support growth of micro-organisms. This can affect such materials as silicone rubbers, EPDM, NBR, santoprene etc – basically the material types used for O-rings and gaskets.

In order to certify a product with WRAS, there are certain tests that must be carried out on all non-metallic materials that come in contact with drinking water. These tests are carried out in accordance with BS 6920 (Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of water). In order to comply with this standard, the material must pass 5 separate tests:

1	Taste of water	Does the material impart a discernible odour to water
2	Appearance of water	Does the material impart any noticeable colour or turbidity to water
3	Growth of micro-organisms	Does the material promote growth of aerobic microorganisms when in water
4	Cytotoxicity	Does a water sample taken from an extraction test show toxicity to mammalian cells
5	Extraction of metals	Does the level of metals leaching from the material exceed defined levels

Based on development work we have carried out with WRc-NSF, we are aware that many “standard” grades of TPE materials will not pass Test 3. For this reason, OASIS selects specific WRAS approved material grades for all O-rings and seals used in our Kalix cooler range. Similarly all water contact parts that we purchase from third party suppliers (e.g. John Guest fittings) must be WRAS certified.

It is important to note that there are a number of international standards for validating the suitability of TPE materials in potable water applications. The most reputable agency is NSF based in USA. Many materials and components are certified in accordance with NSF 61. However, unlike WRAS testing there is no test included in NSF 61 that measures the ability of the material to promote growth of micro-organisms.

This indicates that the fact that a material is certified in accordance with NSF 61 does **not** provide any evidence that the particular material does not promote the growth of micro-organisms