



ADVANCE FOAMS  
FOR USE IN THE  
**HEALTHCARE**  
**SUPPORT AND**  
**PROTECTION**  
INDUSTRY

# Healthcare support and protection

Plastazote® is acknowledged as the most cited thermoplastic foam material in medical literature. The material is used extensively in a wide variety of medical and health care applications, many of which involve direct skin contact. Where a more resilient and elastic foam is required, Evazote® is often the material of choice whereas Supazote® is acknowledged for its soft touch properties.

Latex-free, non-toxic  
and hypoallergenic, the use of

Plastazote and Evazote foams helps reduce skin irritation.

Azote foams are typified by their highly consistent cell structure. Because they are expanded in a free environment (without the use of a mould) they also have little in-built stress and little tendency to distort during conversion; both features that make them easy to process and fabricate.

Azote foams can be routed cleanly to produce the most complex of shapes. Being cross-linked they are equally suitable for thermoforming, either by compression or vacuum moulding. They can be split, sawn, water jet cut, die cut, butt-welded and heat laminated together to form thicker blocks.

## OUTSTANDING PROPERTIES

- Pure, low odour
- Lightweight and durable
- Buoyant
- Closed cell, water repellent
- Excellent chemical resistance
- Good thermal insulation
- Regular, consistent
- Wide range densities and stiffness, from soft, flexible and compliant, to firm, hard and rigid
- Non-toxic and safe
- Highly resistant to ointments and lotions
- Easy to work and shape
- MRI, CT and X-ray lucent
- CFC & HCFC Free



## PODIATRICS

For disorders of the foot such as Pes Planus (flat feet) Plantar Fasciitis (fallen arches) Pes Cavus (high arches) and Hallux Valgus (bunion) the selective use of a range of Azote foam densities is used in the manufacture of orthoses to provide support. Grades can be readily heat laminated to provide differing property combinations such as soft touch and firm support. Much orthopaedic footwear also depends

on the lightweight pliant, shock absorbing nature of Azote foam. Such items as 'common design' inlays (insoles) and elevations are mass produced but the 'direct to body' moulding system is commonly used for custom orthoses.

An accurate impression of the plantar surface of the foot can be obtained by placing the foot on a piece of preheated Plastazote and applying the full body weight.

## PROSTHETICS

The ease with which Azote foams can be cut to shape or moulded, their low weight, durability and non-irritant properties makes them a natural prosthetic material. Plastazote is well established as a lightweight cosmetic cover for upper and lower limb prostheses.





## ORTHOTICS

Plastazote is the natural choice for soft-touch skin contact material used in a wide variety of braces, splints, collars, immobilisers & other supports. Bespoke designs are produced using the technique of 'moulding to body', but many 'standard' orthoses, such as cervical collars and immobilisers, spinal supports and splints may all benefit from the use of Plastazote. High-density grades of Plastazote allow splints to be made that combine light weight with high degrees of rigidity. All Azote foams are also X-ray, CT and MRI lucent.

## ACCESSORIES

Miscellaneous: utensils, buoyancy aids, pads, seats, cushions.

From protection helmets to hydrotherapy equipment, exercise mats to lightweight implement and cutlery handles, comfort linings to wheelchair ramps, seat cushions to lumbar support pads; the healthcare uses for Azote foams are extensive and varied.

Being X-ray, CT and MRI lucent, Azote foams can be used in such applications as MRI vests with confidence that it will not hinder diagnosis.

## HOW TO USE AZOTE FOAMS

Azote foams can be easily cut and shaped manually with a sharp blade or scissors and many simple yet useful items can be made this way.

On an industrial level, Azote foams can be sawn, thickness cut, drilled, sanded, machine routed, die-cut, water-jet cut, butt joined and laminated to give thicker blocks.

Being cross-linked, Azote foams can be thermoformed using a combination of heat and pressure, to produce more complex three-dimensional shapes. They can be vacuum formed or pressure moulded using economical, and quick to produce, wooden tooling but the ability to use manual thermoforming techniques make them particularly valued in many healthcare applications.

## 'DIRECT TO BODY' MOULDING

Plastazote LD grades can be manually moulded to patients' body contours quite easily. The use of this 'direct to body' method enables simple and effective orthoses to be made that provide relief, comfort and warmth. The high purity of Azote foams makes them totally suitable for direct body contact, even onto open wounds and lesions.

The foam is heated in a fan oven regulated at 140°C for a prescribed time (see heating guide for suitable

temperature cycle) before being moulded. Because of its low thermal conductivity and the low amount of thermal energy stored within the foam it can be applied to the body with little discomfort and will quickly and permanently take the shape of the body-part in question.

An accurate impression of the plantar surface of the foot can be obtained by placing the foot on a piece of preheated Plastazote and applying the full body weight.

Using this simple technique, inlays can be made and where necessary pre-

shaped pads e.g for long arch support or metatarsal relief can be incorporated and moulded together. Alternatively a pre-shaped inlay can be cut from the selected grade and, together with any supportive pad, is placed after heating in a suitable sandal. The patient, wearing both sandals to ensure balance and the correct walking action, completes the moulding. This enables extension of the foot to be accommodated. In this manner, relief or support can be achieved in neurological disorders, metatarsalgia, calcaneus deformities and the insensitive or hyper-sensitive foot.



## PRODUCT RANGE HEATING GUIDE

| POLYMER                       | DENSITY                                          | GRADE EXAMPLE | APPROX. HEATING TIME | TEMPERATURE   | COMMENTS       |
|-------------------------------|--------------------------------------------------|---------------|----------------------|---------------|----------------|
| Plastazote foam LDPE          | 45 kg/m <sup>3</sup> (2.8 lbs/ft <sup>3</sup> )  | LD45 Pink     | 10seconds            | 140°C (285°F) | Can be handled |
|                               | 70 kg/m <sup>3</sup> (4.4 lbs/ft <sup>3</sup> )  | LD70 White    | 14 seconds           | 140°C (285°F) | Use gloves     |
| Evazote foam<br>EVA copolymer | 50 kg/m <sup>3</sup> (3.1 lbs/ft <sup>3</sup> )  | EV50 White    | 10seconds            | 140°C (285°F) | Can be handled |
| Plastazote foamHDPE           | 60 kg/m <sup>3</sup> (3.7 lbs/ft <sup>3</sup> )  | HD60 White    | 20seconds            | 150°C (300°F) | Use gloves     |
|                               | 100 kg/m <sup>3</sup> (6.2 lbs/ft <sup>3</sup> ) | HD115 White   | 30 seconds           | 150°C (300°F) | Use gloves     |

## PRODUCT CHARACTERISTICS

|       | MOULDABILITY | REMOULDABLE | WORKING TIME | LIGHTWEIGHT | EASE OF APPLICATION | RIGIDITY | DURABILITY | COMFORT | CUTTING |
|-------|--------------|-------------|--------------|-------------|---------------------|----------|------------|---------|---------|
| LD45  |              |             | 45 SECONDS   |             |                     |          |            |         |         |
| LD70  |              |             | 45 SECONDS   |             |                     |          |            |         |         |
| EV50  |              |             | 45 SECONDS   |             |                     |          |            |         |         |
| HD60  |              |             | 45 SECONDS   |             |                     |          |            |         |         |
| HD115 |              |             | 45 SECONDS   |             |                     |          |            |         |         |

INAPPROPRIATE
ACCEPTABLE
VERY GOOD

Guide 'working times' are based on 6mm thick material for HDPE grades and 12mm thick material for other grades. The product range is constantly being updated; new colours, new densities or more specialist foam grades. Full information on request.

## PRODUCT CHARACTERISTICS

### Application Areas

### Grades

|                                        | LD15 | LD18 | LD24 | LD29 | LD33 | LD45 | LD60 | LD70 | HL34 | HL47 | HL79 | HD60 | HD115 | VA25 | VA35 | EV50 | EM26 |
|----------------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|-------|------|------|------|------|
| Wrist orthosis                         |      |      |      |      | *    | *    | *    | *    | *    | *    | *    | *    | *     |      |      |      |      |
| Cervical collar                        |      |      |      |      | *    | *    | *    | *    | *    | *    | *    | *    | *     | *    | *    | *    | *    |
| Spinal supports                        |      |      |      |      |      |      |      |      | *    | *    | *    | *    | *     |      |      |      |      |
| Knee immobilising splint               |      |      |      |      |      |      | *    |      |      |      | *    | *    | *     |      |      |      |      |
| Cervical brace                         |      | *    | *    | *    | *    | *    | *    | *    | *    | *    | *    | *    | *     |      |      |      |      |
| Resting hand splint                    |      | *    | *    | *    | *    | *    | *    | *    | *    | *    | *    | *    | *     |      |      |      |      |
| Hip abduction splints                  |      |      | *    |      | *    | *    |      | *    |      |      |      |      | *     |      |      | *    |      |
| Night rest splints                     |      |      |      |      |      |      |      | *    | *    | *    | *    | *    | *     |      |      |      |      |
| Loose inlays (insoles)                 |      |      |      |      | *    | *    | *    | *    | *    | *    | *    | *    | *     |      |      |      |      |
| Foot supports                          |      |      |      |      |      |      |      |      |      |      | *    | *    | *     |      |      |      |      |
| Compensating raises inside and outside |      |      |      |      |      |      |      |      |      |      | *    |      | *     |      |      |      |      |
| Compensations for foot amputation      |      | *    | *    | *    | *    | *    |      | *    |      |      | *    |      |       | *    | *    | *    |      |
| Compensating for limb shortening       |      |      |      |      |      |      |      |      |      |      | *    | *    | *     |      |      |      |      |
| Post operative sandals                 |      |      |      |      | *    | *    | *    | *    | *    |      |      |      |       |      |      | *    |      |
| Protective helmets                     |      |      |      |      | *    | *    | *    | *    |      |      | *    |      | *     |      |      | *    | *    |
| Body protection                        |      |      | *    |      |      | *    | *    | *    | *    |      |      |      |       | *    | *    | *    | *    |
| Exercise mats                          | *    | *    | *    | *    | *    | *    |      |      |      |      |      |      |       | *    | *    | *    |      |
| Wrist exerciser                        |      |      |      |      |      | *    |      |      |      |      |      |      |       |      | *    | *    |      |
| Comfort lining for appliances          |      |      | *    |      | *    |      |      |      |      |      |      |      |       | *    | *    | *    | *    |
| Padded toilet seat cover               |      |      |      |      | *    | *    | *    |      |      |      |      |      |       |      |      | *    |      |
| Wheelchair ramps                       |      |      |      |      |      |      |      | *    | *    | *    | *    | *    |       |      |      |      |      |
| Specialist children's seating          | *    |      |      |      |      | *    | *    |      | *    | *    | *    |      | *     |      |      | *    | *    |
| Lightweight implement handles          |      |      |      |      | *    | *    | *    | *    |      |      |      |      |       |      |      |      |      |
| Hydrotherapy/swimming equipment        | *    | *    | *    | *    | *    | *    | *    | *    | *    | *    | *    | *    | *     | *    | *    | *    | *    |
| Spinal board                           |      |      |      |      |      |      |      |      | *    | *    | *    | *    | *     |      |      |      |      |
| X-ray blocks                           | *    | *    | *    | *    | *    | *    |      | *    | *    | *    | *    |      |       | *    | *    | *    |      |
| Protective packaging of equipment      |      | *    | *    | *    | *    | *    |      | *    | *    | *    | *    |      |       |      |      | *    | *    |

## FOR MORE INFORMATION