The information transmitted herewith is given in good faith. A. Schulman’s products are manufactured to the highest quality standards. Please note, however, that all express and implied warranties are expressly denied, and A. Schulman makes no guarantees with respect to goods manufactured with A. Schulman materials. The suitability for application and the performance of any goods manufactured with materials processed and/or sold by A. Schulman is the sole responsibility of the end user. Product design and parameters of end user’s use and manufacturing processes (e.g. design of moulds and moulded products, moulding conditions and QA, conditions of use in service, etc.) are among the various factors that affect the performance of the final products, and these and other factors are outside of A. Schulman’s expertise and area of control.

Note: The photos in this brochure are only representations of what can be produced. At no time is A. Schulman inferring that these products are produced solely with these grades.

### Contents Summary Sheet

<table>
<thead>
<tr>
<th>Colour</th>
<th>ICORENE®</th>
<th>Density</th>
<th>MFI</th>
<th>Characteristics</th>
<th>Typical Applications</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural</td>
<td>1060 ESF</td>
<td>0.934</td>
<td>8</td>
<td>Enhanced Surface Finish will eliminate pinhole problems. While providing excellent mechanical properties.</td>
<td>Medical and hygiene mouldings, point of sale and other design applications requiring a high quality finish.</td>
</tr>
<tr>
<td>Natural</td>
<td>1505</td>
<td>0.945</td>
<td>na</td>
<td>Cross link HDPE superior ESCR, chemical resistance and flow.</td>
<td>Hydraulic oil &amp; fuel tanks, chemical tanks and abrasion applications.</td>
</tr>
<tr>
<td>Black</td>
<td>1505 Black 9001</td>
<td>0.945</td>
<td>na</td>
<td>Black cross link HDPE for toughness, ESCR, chemical resistance, superflow.</td>
<td>Hydraulic oil &amp; fuel tanks, chemical tanks and abrasion applications.</td>
</tr>
<tr>
<td>Natural</td>
<td>1869</td>
<td>0.927</td>
<td>3.5</td>
<td>Adhesive grade, good bond to metal, good processability &amp; physical properties.</td>
<td>Adhesive tie layer for PE, corrosion protection rotolining of pipes or tanks.</td>
</tr>
<tr>
<td>Black</td>
<td>1870</td>
<td>0.939</td>
<td>20</td>
<td>A highly adhesive grade, excellent chemical resistance, lower processing times.</td>
<td>Rotolining of tanks and pipes requiring high chemical resistance, eg: Fire extinguishers.</td>
</tr>
<tr>
<td>Natural &amp; Black</td>
<td>4014</td>
<td>0.900</td>
<td>15</td>
<td>PP copolymer. Used for its higher stiffness, temperature &amp; scratch resistance. Easy to mould. UV stabilized.</td>
<td>Engine components, small tanks, ducting and industrial housings.</td>
</tr>
<tr>
<td>Natural &amp; Black</td>
<td>4035</td>
<td>0.900</td>
<td>30</td>
<td>PP copolymer. With higher stiffness vs PE combined with high flow characteristics and improved impact.</td>
<td>Engine components, small tanks, ducting and industrial housings.</td>
</tr>
<tr>
<td>Off White, Light Grey &amp; Dark Grey</td>
<td>9105 V0</td>
<td>&gt;1.00</td>
<td>na</td>
<td>UL94 V0 rated for 5mm flame retardant PE. Easy moulding. Specific colours only.</td>
<td>Tanks, machine covers and bins required to have flame retardancy.</td>
</tr>
<tr>
<td>Natural &amp; Black</td>
<td>9402</td>
<td>0.890</td>
<td>30</td>
<td>Optimum hot and cold Elastomer, soft touch, easy to process and extremely tough.</td>
<td>Furniture, marine buffers and automotive ducting.</td>
</tr>
<tr>
<td>Natural &amp; some tints</td>
<td>9909</td>
<td>1.20</td>
<td>20</td>
<td>Polycarbonate, glass-clear, roto-powder. High stiffness &amp; built-in flame retardancy.</td>
<td>Lighting globes, point of sales items, safety products, small cabinets.</td>
</tr>
<tr>
<td>Natural</td>
<td>9993</td>
<td>1.800</td>
<td>na</td>
<td>PPOF. Easy to mould exhibiting EXTREMELY high temperature and chemical resistance.</td>
<td>Typically chemical tanks and ducts, continuous service temp to 120C.</td>
</tr>
</tbody>
</table>
ICORENE® Speciality Grades

At A .Schulman we strive to provide the rotational moulding industry with the most comprehensive and technical grade slate available in Europe.

The ability to call on our experiences from our other business units such as Engineering plastics and Masterbatch, provides the Specialty powder division with resources that cannot be matched by our competitors.

Enclosed you will find the high performance specialty grades for rotational moulding that will enable new products and applications to be explored. This will provide OEM’s with alternatives to other processes that they are currently using.

ENJOY!
Moulders have always battled with pinholes on the surface of products. High flow grades have been used in the past, however they have poor physical properties. A.Schulman Specialty powders in collaboration with its Master batch division have produced a grade that when processed correctly, produces a remarkable "Enhanced Surface Finish" with excellent mechanical properties that cannot be matched in the market place.

Perfect for mouldings in applications such as hygienic or medical environments and high value products such as furniture. Bring your quality up to a new level with Icorene 1060 Enhanced Surface Finish.

Features:

- Smooth surface
- Good flow
- Easy processing
- Good physical properties
- No surface pinholing
ICORENE® 1505 Xlink

“Performance Advantages and a Remarkable Toughness”

When making plastic parts, maintaining a balance between high molecular weight attributes and low molecular weight processing flow can be a challenge. Cross-linkable ICORENE® high density polyethylene resins are unique materials that offer rotational moulders the advantage of high-flow moulding and high molecular weight part performance.

Cross linkable PE powder moulds in a similar way to normal HDPE powder but reacts in the mould with heat to form a continuous molecular structure that will not re-melt and flow as a standard HDPE would.

Features:

- Rapid melting
- High part definition
- Low odour
- High-notched impact strength
- Outstanding ESCR
- Excellent thermal resistance
Standard roto moulding LLDPE and HDPE grades will shrink away from the metal when used for lining tanks and pipes. Icorene 1869 has been designed using a high performance additive package formulated to provide an excellent bonding to metal surfaces during processing. Rotolining provides a corrosion resistant coating that will give years of protection.

**Features:**

- High adhesion
- Excellent bond to pre-treated metal
- Easy processing
- Good physical properties
- Corrosion protection
ICORENE® 1870
Rotolining

“NEW unique rotolining grade, enhanced adhesion and chemical resistance”

This new rotolining formulation with outstanding adhesion can be used at half the thickness of other rotolining grades. Icorene 1870 is a thermoplastic material that has been specifically developed using the formulation experience of A. Schulman in polymer technology.

Features:
- Excellent adhesion
- Outstanding bond to pre-treated metal
- Tough and long lasting
- Good physical properties
- Enhanced corrosion protection
ICORENE® 4014
Polypropylene

“Improved stiffness and excellent scratch resistance”

When the application requires an increased stiffness or a higher temperature resistance that PE cannot meet, then Icorene 4014 is an ideal grade choice. It is a copolymer that has been exclusively developed for rotational moulding with an excellent balance in properties, yet easy to mould.

Features:

• High temperature resistance
• High stiffness & creep resistance
• Excellent scratch resistance
• UV stabilised
• Available in colours
ICORENE® 4035
Polypropylene

“High Impact rotational moulding polypropylene, that moulds well!”

Rotational moulding polypropylenes have always lacked an important material property; impact resistance. Icorene 4035 exceeded our expectation during its recent development, with Impact @ 23° up to 6 times higher, Impact @ 0° up to 8 times higher and Elongation at break 3 times higher than the leading PP grades available in Europe.

Features:
- Excellent Impact properties
- Good stiffness & creep resistance
- High scratch resistance
- UV stabilised
- Available in colours
ICORENE® 7620
Fuel Lock™

“Finally, a cost effective single layer fuel resistant rotomoulding material”

ICORENE® Fuel Lock™ powder represents an exciting new PA6 rotomoulding material option derived from a technical collaboration between A.Schulman and DSM Engineering Plastics. It is a unique new PA6 polymer based material from DSM research with their new Fuel Lock™ technology for optimum performance in fuel permeation resistance and excellent physical properties especially in direct contact with fuel.

Features:

- Excellent additive package specifically designed for rotomoulding
- Permeation resistance to Petrol and Alcohol fuels
- Very stiff, Flexural Modulus 1700 MPa
- Good impact resistance to –40 °C
- Chemical resistance
- Permeation barrier
- Low temp impact
- High heat performance
ICORENE® 9005
Nylon 12

"Outstanding performance history, why gamble with anything else"

ICORENE® 9005 is a nylon 12 powder purposely developed for use in rotational moulding and is suitable for use in many different applications. It has good overall mould ability, high stiffness and high temperature resistance.

COMMENT: Leading European Nylon 12 moulder.
“Other nylon 12 grades might be cheaper on the market, but they do not have the proven performance over many years like Icorene 9005”

Features:

• Easy to mould, no Nitrogen purging needed.
• Excellent high temp resistance.
• Superb fuel permeation resistance.
• Exceptional resistance to stress cracking.
• Good abrasion resistance.
• Excellent HDT
Our definition of success is helping you achieve yours

ICORENE® 9105
VO Flame Retardant

“Flame retardant with VO characteristics! We have been waiting for years”

Many applications in the building, construction, transport and mobility sector specify a high flame retardancy in the properties of the thermoplastic. Now Icorene 9105 VO FR meets this requirement opening new opportunities to moulder’s and OEM’s alike.

Features:

• Unique VO FR Properties.
• Easy to process, like HDPE.
• Good surface finish.
• Good mechanical properties.

Waste bio-digester
Medical waste bins

Oven
Piat
Piat 210
ICORENE® 9402
TPE

“An interesting grade, no break at -40°C! A material that is unbreakable?”

ICORENE® 9402 is an olefin elastomer particularly developed for rotational moulding by A Schulman in conjunction with API Plastics. Offering optimum cold and hot elasticity with UV resistance, it has an interesting appearance with excellent soft touch properties. Ideal applications such as non slip surface, furniture and high temperature applications such as ducting.

Features:

• Unique soft touch.
• Fully UV stabilised and age resistant.
• Non slip properties.
• Cold and hot elasticity.
• Compatible with polyethylene.
• Stiffness reinforcement by multilayer structures (Icorene® 6007 foam).
In the past only a few roto-moulders were able to process Polycarbonate (PC) in Europe. A. Schulman’s goal with the development of ICORENE® 9909 was to generalise the ability to process and enlarge the possible applications for PC. As an amorphous material, the PC is transparent with a glossy finish and exhibits excellent mechanical properties, a high Flexural modulus approx. 2000mpa, good impact strength and very low flame retardancy.

Features:

- Transparent.
- UV stabilised.
- Very high stiffness
- Flame retardant, inherently meets UL94-V2
- Higher oven temperature required.
“Recently described as the superman of all grades”

How many projects in roto moulding have been turned down due to no availability of a suitable material? ICORENE® 9993 PVDF belongs in the fluopolymer family and is the grade when other materials can not handle the specification. An incredibly high chemical resistance and toughness not found with any other roto grade. This is the grade when all other materials fail!

Features:

- Superb chemical resistance.
- High temperature and thermal stability.
- Excellent fire resistance, rated UL94-V0.
- Good resistance to UV radiation.
- Good abrasion resistance.
- Excellent HDT