

Why Active Birth Pools Ficore® Composite is a Superior Material to Acrylic and Fibreglass for Water Birth Pools

Ficore® is superior to acrylic and fibreglass for water birth pools because it was developed specifically to overcome the limitations of conventional bath materials.

Acrylic and fibreglass are widely used because they are lightweight, relatively economical and easy to form, but both have important limitations in demanding clinical environments.

They can flex, scratch, dull, depend on reinforcement, and may be vulnerable to surface wear or structural fatigue over time.

Fibreglass in particular is generally considered less durable than acrylic and relies on a surface coat over reinforced layers. [A]

Ficore is different.

It is a proprietary solid composite of eight materials chemically fused during manufacture and heat-cured at high temperature. It is not laminated or bonded, so it cannot delaminate or come apart.

It is strong but comparatively light, rigid without a supporting chassis, highly resistant to impact and chemicals, repairable, warm to the touch, and capable of being moulded into precise ergonomic forms. [B]

For a hospital water birth pool, these material advantages have practical consequences.

Ficore enables seamless one-piece construction, improved hygiene, long-term surface integrity, better heat retention, reduced maintenance, superior structural stability, improved ergonomics and a longer useful life.

In short, Ficore is not merely a premium version of acrylic or fibreglass; it is a fundamentally more suitable material for the specific demands of maternity care.

1. The Demands Placed on a Water Birth Pool

A water birth pool is exposed to conditions that are more demanding than those faced by a domestic bath.

It must withstand repeated filling and emptying, warm water, disinfection, cleaning chemicals, body weight, movement, staff contact, emergency procedures and constant inspection.

It must also support infection control, manual handling safety and long-term value for hospitals.

This means the material must do more than look attractive when new.

It must remain rigid, hygienic, smooth, cleanable, chemically resistant and structurally reliable after years of use.

It must also allow ergonomic features to be integrated into the form of the pool rather than added as accessories.

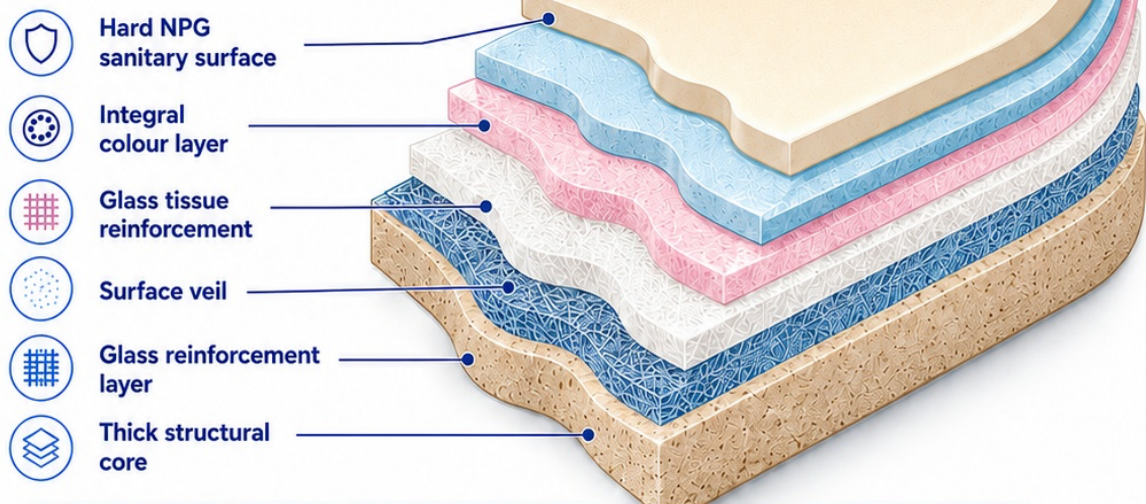
Acrylic and fibreglass can be suitable for ordinary domestic baths and showers, but they were not developed specifically for clinical water birth environments.

Ficore was created to solve the known weaknesses of standard bath materials while preserving their useful advantages. [B]

Ficore® Solid Composite Construction

Clear technical overview for hospital water birth pools

Ficore® was developed specifically for high-performance baths and water birth pools. It combines strength, hygiene, durability and comfort in a single solid composite structure.



Ficore® is a solid composite of eight materials, chemically fused and heat-cured at high temperature. It is **not laminated or merely bonded**, so it cannot delaminate or come apart.

Why it matters



1. More slip resistant

Less slippery than acrylic or fibreglass



2. Superior heat retention

Keeps water hot up to 6× longer than standard acrylic backed by glassfibre



3. Strong and rigid

Will not flex, buckle or change shape under pressure



4. Chemical and water resistant

Withstands cleaning, disinfection and thermal shock



5. Fully repairable

Damage can be repaired and restored



6. Built to last

Life expectancy in excess of 25 years

Illustrative cross-section — not to scale.

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2. Ficore Is a Solid Composite, Not a Laminate

One of Ficore's most important advantages is its construction. Ficore is a composite of eight materials chemically fused during manufacture and then heat-cured at high temperature.

Because it is not laminated or bonded, it cannot delaminate, separate or come apart. [B]

This is a major distinction from fibreglass and many acrylic bath constructions.

Fibreglass baths are typically built from layers of surface coat, polyester resin and fibreglass reinforcement.

Acrylic baths are commonly vacuum-formed from acrylic sheet and reinforced underneath with fibreglass or other support materials. [A]

Layered construction can work adequately in lower-demand environments, but it introduces dependency on the quality of the bond, the thickness of the surface layer and the strength of the reinforcement.

If the surface becomes worn, cracked or compromised, the underlying structure may be exposed.

Ficore's non-laminated construction is therefore not just a technical distinction. It directly supports long-term reliability and reduces the risk of material failure.

3. Greater Rigidity and Structural Integrity

Acrylic and fibreglass are valued partly because they are lightweight and formable, but their flexibility can become a weakness. Acrylic baths often require reinforcement to keep them rigid, and fibreglass products can flex under load if not adequately supported.

In a water birth pool, flexing is undesirable because it can lead to movement, creaking, stress points, cracking, seal failure or user insecurity.

Ficore exhibits very high structural integrity. It is non-flexing, will not buckle, bow or change shape under pressure, and requires no chassis or frame to support it.

Ficore pools need no metal or wooden reinforcement and will not shift, creak or "give". [B] [C]

This matters because a filled water birth pool carries a significant load. The pool must support hundreds of litres of water plus the mother's weight and movement.

Ficore's rigidity gives the finished pool a reassuring solidity that acrylic and fibreglass often cannot provide without added reinforcement.

4. Superior Surface Hardness and Scratch Resistance

A water birth pool surface must stay smooth. Scratches are not merely cosmetic; they can make cleaning more difficult, dull the finish and create microscopic irregularities where soil or contamination may be harder to remove.

Ficore has a documented advantage here. Its surface is made from isophthalic neo-pentyl-glycol and is stated to be 50% harder than acrylic when both materials are hot. This is important because the test condition reflects real use: a pool filled with warm water.

Independent abrasive slurry wear testing to ANSI methods showed that after 10,000 cycles Ficore lost only 0.5% reflectance, compared with a typical 2% for acrylic. [B]

Acrylic is generally regarded as tougher and more durable than basic fibreglass in domestic bath applications, but acrylic can still scratch and may need polishing or repair.

Fibreglass products rely on a surface coat, which can scratch, dull or wear over time, especially in heavy-use environments. [A]

Ficore's harder surface means it is better suited to repeated clinical cleaning and long-term visual and hygienic performance.

Ficore® compared with acrylic and fibreglass / GRP

Part 1 — structure, durability and heat performance

Requirement	Ficore®	Acrylic	Fibreglass / GRP	Why Ficore® matters
 Construction method	Solid fused composite; heat-cured.	Thermoformed acrylic sheet, usually reinforced.	Gelcoat with glassfibre laminate.	Unified structure with low risk of delamination.
 Rigidity	Strong, rigid, non-flexing; no chassis required.	Can flex or creak; often needs reinforcement.	More rigid than plain acrylic, but less stable than Ficore®.	Stable under load in clinical use.
 Surface hardness	50% harder than acrylic when hot.	Softer; scratches more easily.	Variable; not shown to match Ficore®.	Better scratch resistance and durability.
 Wear / gloss retention	0.5% reflectance loss after 10,000 cycles.	Typically 2% in the cited test.	No equivalent result supplied.	Keeps a cleaner-looking finish for longer.
 Heat retention	Keeps water hot up to 6x longer than standard acrylic backed by glassfibre.	Lower heat retention.	Lower heat retention.	Improves comfort and reduces hot-water top-ups.



At a glance: Ficore® combines structure, hardness and heat retention in one engineered composite.

5. Better Chemical Resistance for Cleaning and Disinfection

Hospitals need materials that tolerate cleaning and disinfection.

A water birth pool must be cleaned thoroughly and repeatedly using approved protocols.

If the material is vulnerable to chemicals, the surface can lose gloss, craze, soften, dull or become harder to clean.

Ficore is resistant to most chemicals, including acid and alkaline solutions such as limescale remover.

Design & Form who invented Ficore explicitly contrast this with acrylic and vitreous enamel, which it says cannot withstand the same chemical exposure. [B]

Acrylic, or PMMA, has useful properties but also recognised chemical limitations.

Technical references describe PMMA as having poor resistance to many organic solvents and note that it can swell or dissolve in some chemicals.

PMMA chemical compatibility depends heavily on the exact chemical, concentration, temperature and exposure time. [D]

Fibreglass bath products depend heavily on their gelcoat or surface layer. Once the surface becomes scratched, worn or chemically degraded, the product can become harder to clean and less attractive. [A]

Ficore's chemical resistance is therefore a significant advantage for maternity environments, where effective cleaning is non-negotiable.

6. Superior Heat Retention

Heat retention is a major performance benefit in a water birth pool.

Labour can last for hours, and maintaining water temperature can require top-ups.

Better insulation reduces heat loss, improves comfort and can reduce water and energy use.

Ficore is described as a very effective insulator for both heat and sound.

Ficore keeps water hot six times longer than standard acrylic backed by glass fibre and twelve times longer than vitreous enamelled cast iron. Active Birth Pools' Ficore data sheet repeats this claim and identifies heat retention as one of Ficore's functional benefits. [B] [C]

Acrylic and fibreglass are warmer and lighter than metal baths, but Ficore's superior insulation gives it a meaningful performance advantage. In a hospital setting, this can mean fewer interruptions, reduced water waste, lower energy demand and a better experience for the mother.

7. Better Resistance to Heat and Thermal Shock

A water birth pool is repeatedly exposed to warm water, temperature changes and cleaning regimes.

A material that softens, distorts or becomes stressed under heat is unsuitable for long-term clinical use.

Ficore can withstand continuous exposure to hot water at 80°C and tolerate thermal shock from alternating hot and cold water. [B]

Acrylic has moderate heat resistance, but its long-term service temperature is commonly given in the region of 70–80°C, depending on grade and source.

That does not mean acrylic automatically fails in ordinary bath use, but it does show that Ficore's documented tolerance to continuous 80°C hot water and thermal shock is highly relevant for demanding use. [D]

For water birth pools, repeated hot water exposure and cleaning cycles make this an important margin of safety.

Ficore® compared with acrylic and fibreglass / GRP

Part 2 — hygiene, safety, repair and whole-life value

Requirement	Ficore®	Acrylic	Fibreglass / GRP	Why Ficore® matters
 Thermal and chemical resistance	Withstands hot water up to 80°C, thermal shock, and most acids and alkalis.	More limited resistance.	More limited resistance.	Better suited to repeated cleaning and use.
 Slip characteristics	Less slippery and more slip resistant than acrylic or fibreglass.	More slippery.	More slippery.	Better traction for mothers and staff.
 Hygiene and cleanability	Hard, smooth, seamless, easy-clean surface.	Scratches can affect long-term finish.	Surface wear can affect finish.	Supports infection-control cleaning.
 Repairability	Fully repairable and restorable.	More limited repair options.	Repairable, but less easily restored.	Extends service life and protects investment.
 Service life	Life expectancy in excess of 25 years.	Typically shorter.	Typically shorter.	Better whole-life value.
 Design freedom	Sharper detail, tighter radii and curves.	Can be formed, but performance depends on reinforcement.	Can be moulded, but surface integrity may be limiting.	Supports ergonomic, purpose-designed birth-pool design.



Why hospitals choose Ficore®

- Strong, rigid and durable
- Easier to clean and maintain
- Long-term value for hospital water birth pools

8. Hygiene Advantages: Seamless, Non-Porous, One-Piece Construction

Material performance and hygiene are closely linked.

A pool that flexes, scratches, cracks, delaminates or relies on multiple fittings and seams can become harder to clean over time.

Active Birth Pools use Ficore to create seamless, one-piece pools with smooth organic contours.

Seamless construction eliminates joins, dirt traps and biofilm risks, supporting optimal hygiene and long service life.

The absence of surface-mounted metalwork reduces risk, improves hygiene and gives mothers and midwives freedom of movement around the pool. [E]

This is one of Ficore's most important advantages.

Because it allows precise moulding, integrated forms and a durable smooth surface, hygiene is built into the product rather than dependent on add-ons or complex maintenance.

Acrylic and fibreglass can be made smooth when new, but their long-term hygiene performance depends on surface integrity, reinforcement, installation quality and wear.

Ficore's combination of hardness, chemical resistance, non-delaminating structure and repairability gives it a stronger long-term hygiene profile.

9. Repairability and Long-Term Restoration

No material is completely immune to damage. The important question is what happens if damage occurs.

Ficore is described as fully repairable.

The repair instructions show a structured process for addressing chip or scratch damage using bonding paste, gelcoat, wet-and-dry papers and polishing compound to restore the surface to a gloss finish. [F]

This is important for hospitals because a repairable material protects the asset value of the pool.

Replacement is expensive, disruptive and wasteful. If surface damage can be restored effectively, the pool can remain in service longer.

Acrylic and fibreglass can also sometimes be repaired, but the result depends on the nature of the damage, the thickness of the surface layer and whether the underlying reinforcement has been compromised.

Ficore's solid composite structure and repair system provide a stronger basis for long-term restoration.

10. Design Freedom: Ficore Enables Better Ergonomics

A material is superior not only because of its strength but because of what it allows designers to do.

Ficore permits sharply defined details, tighter radii and cleaner, more precise forms than many conventional bath materials.

This is central to Active Birth Pools because the pools are not simple tubs; they are ergonomic working environments. [B]

Active Birth Pools use this design freedom to create wide rims, integrated seating, recessed handgrips, smooth contours, stable support surfaces and spacious interiors that encourage natural movement and upright labour positions.

The catalogue describes the pools as shaped by the dynamics of mothers and midwives as they move and interact with the pool. [E]

This is where Ficore clearly outperforms acrylic and fibreglass in a birth pool context.

Acrylic and fibreglass can be moulded, but Ficore combines mouldability with rigidity, surface hardness and structural strength.

That allows ergonomic features to be integrated without compromising stability or hygiene.

Ficore[®] properties and advantages

Part 1 — material performance and practical benefits

Property	Key fact	Why it matters
 Construction	Solid composite of eight materials; chemically fused and heat-cured. Not laminated or merely bonded.	No risk of delamination; long-term structural integrity.
 Surface hardness	50% harder than acrylic when hot.	Better scratch resistance and durability in real use.
 Wear and gloss retention	Only 0.5% reflectance loss after 10,000 cycles; acrylic typically 2%.	Helps the finish stay cleaner-looking for longer.
 Rigidity	Strong, rigid and non-flexing.	Stable under load in clinical use.
 No chassis required	Requires no metal or timber support frame.	Simplifies installation and avoids creaking or movement.
 Heat retention	Keeps water hot up to 6x longer than standard acrylic backed by glassfibre.	Improves comfort and reduces hot-water top-ups.
 Thermal shock resistance	Withstands hot water up to 80°C and alternating hot / cold water.	Well suited to repeated filling, emptying and cleaning cycles.
 Chemical resistance	Resists most acids and alkalis.	Supports cleaning, descaling and disinfection.

 Summary based on Active Birth Pools and Design & Form technical documents.

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11. Less Dependence on Added Frames, Supports and Fittings

Because Ficore is inherently strong and rigid, it does not require the same level of external support as many acrylic or fibreglass products.

This has practical benefits.

A pool that depends on a frame, chassis, timber support or hidden reinforcement introduces more components, more installation variables and more potential maintenance issues.

Ficore needs no metal or wooden reinforcement and requires no framework to assemble or install. [C]

This simplicity supports durability, installation confidence and hygiene.

It also gives the finished pool a cleaner, more integrated form.

12. Better Whole-Life Value

Acrylic and fibreglass are often chosen because they are economical at purchase.

However, the lowest initial cost is not necessarily the best value in a hospital setting.

Ficore offers superior whole-life value because it combines long service life, low maintenance, repairability, heat retention, rigidity and hygiene.

Active Birth Pools states that its Ficore pools are built to last for decades, guaranteed for life and require minimal maintenance.

This is particularly relevant for maternity units, where the pool is a long-term clinical asset.

Replacement costs, room downtime, maintenance, cleaning burden, repairs, water and energy use, and staff confidence all affect real value.

A material that remains structurally sound, hygienic and attractive for decades is likely to be more economical over its service life than a cheaper material that needs earlier repair, refinishing or replacement.

13. Why Acrylic Falls Short by Comparison

Acrylic has genuine advantages.

It is lightweight, relatively durable, widely available and can be formed into attractive shapes.

It is commonly used for domestic baths and is often stronger than basic fibreglass. [A]

However, compared with Ficore, acrylic has several limitations in water birth pool use:

- It often requires reinforcement to remain rigid.

- It can flex under load if inadequately supported.

- It is more prone to scratching than Ficore.

- Its chemical resistance depends heavily on the chemical and exposure conditions.

- It does not match Ficore's documented wear-test performance.

- It does not provide the same structural independence from frames or chassis.

- It does not offer the same proven ability to create robust, seamless, highly ergonomic hospital-grade pools without compromise.

The key point is not that acrylic is a poor material in all uses.

It is that acrylic is not the optimal material for the specific safety, hygiene, ergonomic and durability demands of hospital water birth pools.

14. Why Fibreglass Falls Short by Comparison

Fibreglass is popular because it is lightweight and relatively inexpensive.

It is commonly used in baths and showers, especially where low initial cost matters.

However, fibreglass is generally less durable than acrylic and depends on a surface coat over reinforced layers. [A]

Compared with Ficore, fibreglass has several weaknesses:

It is typically a layered material rather than a solid chemically fused composite.

Its surface coat can scratch, dull or wear.

It can flex if not adequately supported.

It may be more vulnerable to cracks and surface degradation over time.

It does not offer Ficore's hardness, rigidity, chemical resistance or heat retention.

It cannot provide the same premium, long-life clinical performance without relying heavily on reinforcement and surface maintenance.

For ordinary domestic bathing, fibreglass may be acceptable where budget is the dominant factor.

For a hospital water birth pool, where hygiene, safety and long-term durability are paramount, Ficore is clearly more appropriate.

15. Clinical Implications for Water Birth Pools

The superiority of Ficore becomes clearest when assessed against the real requirements of maternity care.

For mothers, Ficore allows warm, comfortable, smooth, supportive pools that encourage movement and instinctive positioning.

For midwives, Ficore enables wide rims, strong integrated support points, unobstructed access and stable working surfaces.

For infection control teams, Ficore supports seamless construction, smooth contours, minimal dirt traps and resistance to cleaning chemicals.

For estates teams, Ficore offers rigidity, repairability, minimal maintenance and long service life.

For procurement teams, Ficore provides better whole-life value because the product is built to last rather than simply purchased cheaply.

In this context, Ficore is not simply a better bath material. It is a superior material platform for clinical water birth pool design.

Ficore[®] properties and advantages

Part 2 — hygiene, usability and whole-life value

Property	Key fact	Why it matters
 Water immersion performance	Approved for long-term potable water storage; ANSI Z124.1 water resistance test passed.	Supports confidence in long-term wet-use durability.
 Slip characteristics	Less slippery and more slip resistant than acrylic or fibreglass.	Better traction for mothers and staff.
 Warm tactile feel	Warm to the touch despite its hard surface.	More comfortable and reassuring for mothers.
 Seamless hygiene	One-piece seamless shell with hard, smooth, easy-clean surface.	Fewer crevices and dirt traps; easier infection-control cleaning.
 Design precision	Permits sharper detail, tighter radii and curves.	Enables ergonomic, purpose-designed birth-pool forms.
 Impact resistance	Highly resistant to impact; will not chip or crack like brittle finishes.	Better durability in busy hospital use.
 Repairability	Fully repairable and restorable.	Protects the asset and extends service life.
 Colours and finishes	Available in many colours; gloss or matt finish.	Design flexibility for different settings.
 Service life	Life expectancy in excess of 25 years.	Better whole-life value and sustainability.

 Summary based on Active Birth Pools and Design & Form technical documents.

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Appendix A: Source Mapping and Citation Key

Marker	Source group	Evidence used / relevance
A	General acrylic and fibreglass bath-material references; comparative bath construction and material guidance.	Supports the baseline comparison: acrylic and fibreglass are lightweight, economical and formable, but can depend on reinforcement, surface layers and bonded or laminated construction. It also supports statements that fibreglass is generally less durable than acrylic and relies on a surface coat over reinforced layers.
B	Design & Form - Active Birth Pools Material Specification: FICORE; Design & Form Ficore technical specification and Ficore technical information.	Supports the core Ficore material claims: proprietary solid composite, eight chemically fused materials, high-temperature curing, non-laminated construction, resistance to delamination, rigidity, chemical resistance, impact resistance, heat retention, thermal shock resistance and design freedom.
C	Active Birth Pools - Data Sheet - Ficore; Active Birth Pools Ficore product information.	Supports claims that Ficore birth pools need no metal or wooden reinforcement, do not creak or give, offer structural rigidity, retain heat well, require minimal maintenance and provide practical whole-life value.
D	PMMA / acrylic material-property and chemical-compatibility references.	Supports contextual statements about acrylic / PMMA chemical limitations, solvent sensitivity and temperature-performance considerations. These references are used only for general comparison with Ficore, not as product-specific testing of any named competitor.
E	Active Birth Pools Catalogue and Guide; Active Birth Pools website.	Supports the water-birth-pool design claims: seamless one-piece construction, smooth organic contours, minimal fittings, hygiene-led design, wide rims, integrated seating, recessed handgrips, ergonomic support, midwife access, safer entry and whole-life value.
F	Ficore Repair Instructions for Birth Pool.	Supports repairability claims, including the practical process for chip or scratch repair using bonding paste, gelcoat, wet-and-dry papers and polishing compound to restore the surface.

Appendix B: Reference List and URLs

1. Active Birth Pools - Catalogue and Guide PDF. <https://activebirthpools.com/wp-content/uploads/2025/10/Catalogue-and-Guide.pdf>
2. Active Birth Pools - Catalogue PDF. <https://activebirthpools.com/wp-content/uploads/2025/02/Active-Birth-Pools-Catalogue-.pdf>
3. Active Birth Pools - Ficore Data Sheet 2019. <https://activebirthpools.com/wp-content/uploads/2019/08/Ficore-Data-Sheet-2019.pdf>
4. Active Birth Pools website. <https://activebirthpools.com/>
5. Design & Form - FICORE®: The Bath Design Revolution. <https://www.designandform.com/ficore-the-bath-design-revolution/>
6. Design & Form - 40 Years of Excellence in Bath Manufacture. <https://www.designandform.com/40-years-of-excellence-in-bath-manufacture/>
7. Design & Form - Active Birth Pools Material Specification: FICORE. Uploaded/internal source document.
8. Design & Form - Ficore Specification Sheet. Uploaded/internal source document.
9. Active Birth Pools - Data Sheet - Ficore. Uploaded/internal source document.
10. ANSI Z124.1 test documentation for Ficore material performance. Uploaded/internal source document.
11. Ficore Repair Instructions for Birth Pool. Uploaded/internal source document.
12. PMMA / acrylic material-property and chemical-compatibility references used for contextual comparison of acrylic performance.
13. General fibreglass bath-construction and bath-material comparison references used for contextual comparison of fibreglass performance.

Appendix C: Certifications, Standards and Compliance Context

Certification / standard / document	Relevance to this assessment
BS EN 14516 / EN 14516 - Baths for domestic purposes	Provides the sanitary-ware context for bath-type products, including cleanability, load resistance, durability, test methods and conformity assessment. Applicability should be confirmed for the specific product and market.
CEN/TR 17221 - Guidance on CE marking and preparation of Declaration of Performance for sanitary appliances	Supports reference to CE-marking and Declaration of Performance guidance for sanitary appliances under the Construction Products Regulation framework where applicable.
Health Building Note 00-10 Part C - Sanitary assemblies	Provides healthcare-estates context for sanitary assemblies in healthcare facilities, including the importance of cleanable surfaces, suitable fittings and infection-control-aware sanitary design.
Active Birth Pools product compliance documentation	Supports statements that CE documentation and Declarations of Performance are available where applicable and should be read alongside product-specific documentation.
Project plumbing and electrical specifications	Supports statements that plumbing and electrical components should be specified to comply with local regulatory requirements and that third-party certified components should be used where required.
ANSI Z124.1 test documentation for Ficore material performance	Supports the abrasive slurry wear-test reference used in the assessment to discuss Ficore surface performance and reflectance loss after repeated cycles.
Ficore repair documentation	Supports repairability claims and the practical ability to restore damaged surfaces rather than replace the entire pool where appropriate.