Reimagining Black Denim: The Unparalleled Wash-Down Effect with DIRESUL Dyestuff

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1. The Advanced Black denim collection marks another milestone for Archroma in sustainability. Could you elaborate on how the DIRESUL® EVOLUTION BLACK LIQ dyestuff stands apart from traditional dyestuffs?

Based on cutting-edge synthesis technology developed by Archroma, DIRESUL® EVOLUTION BLACK LIQ delivers an overall impact reduction to 57%*, measuring its effect on human health, ecosystems and resources compared to standard Sulfur Black 1 liquid.

Unlike traditional synthesis processes, it does not produce any ammonia, sodium salts waste or liquid effluents, and water consumption in the synthesis process is reduced by 73% for massive savings. The new DIRESUL® dyestuff, when adopted with the full Archroma coloration system, delivers a new black color with on-tone wash-down effect and cleaner effluent at the mill.

2. One of the highlights mentioned is a 57% overall impact reduction with DIRESUL EVOLUTION BLACK LIQ. Could you shed more light on the methodology behind this calculation?

The overall impact reduction of 57% is determined by Ecoterrae, a leading Spain-based sustainability consulting firm, through a Life Cycle Analysis (UNE-EN ISO 14044:2006) at the synthesis stage, using the ReCiPe 2016 Impact calculation methodology. The analysis was done comparing DIRESUL® EVOLUTION BLACK LIQ versus standard Sulfur Black 1.

The impact is delivered based on three broad categories:

- Resources – reduced resource impact, safeguarding our and the earth's precious resources
- Human health – lessened exposure to harmful compounds, contributing to better health and well-being
- Ecosystem – Minimized impact on the earth's biodiversity and its habitats, enriching our planet with healthier and more balanced ecology.

3. What challenges did Archroma face when innovating the DIRESUL EVOLUTION BLACK LIQ, given that the traditional Sulfur Black 1 synthesis process has been in use for over a century?

The main challenge was replacing the main raw material with an alternative that could work in a more sustainable synthesis process compared to the traditional process for producing Sulphur Black 1. Once synthesized, our black dye must be able to be applied in the existing dyeing processes and also develop a new color that can be appreciated by the market.

4. You mentioned that unlike traditional processes, the synthesis of DIRESUL EVOLUTION BLACK LIQ does not produce ammonia, sodium salts waste, or liquid effluents. Can you provide more insights into how Archroma achieved this breakthrough?

The main raw material for producing Sulfur Black 1 has been used for more than a century and it was always going to be a challenge finding a suitable alternative. Drawing on our longstanding expertise and experience in manufacturing sulfur dyes and their synthesizing technologies, we were able to innovate and make a breakthrough with an alternative raw material that has a completely different chemistry and does not generate such residues.



5. How does the new DIRESUL dyestuff, when combined with the full Archroma coloration system, enhance the denim's appearance, particularly regarding the on-tone wash-down effect?

Traditionally the classic sulphur black 1 when bleached with sodium hypochlorite gives a brownish and irregular tone, while the new Evolution Black result is a nice brilliant grey. This allows new wash effects and final looks for black denim.

6. Archroma's dedication to sustainability is evident. What's next for Archroma in terms of sustainable innovations for the textile industry?

Our dedication to sustainability is at the core of our mission. Looking ahead, we are committed to pushing the boundaries even further. We'll continue to innovate and develop new eco-advanced solutions that address the evolving needs of the textile industry.



7. The collaboration between Textil Santanderina and Archroma is not new. Can you comment on the synergy between the two organizations and how this collaboration enhances the denim market?

We are always delighted to collaborate with like-minded partners in the fashion and apparel industry. Working with Textil Santanderina means that together, we can make an impact on the denim industry. As one of the recognized innovators in the denim industry, working with them has allowed both parties to elevate the prominence of sustainability within the denim industry. Our first collaboration with them was for a collection that used our aniline-free indigo dyes.

The most recent collaboration with Textil Santanderina uses our DIRESUL EVOLUTION BLACK LIQ. It meets the latest industry standards, while ensuring savings on water, energy and carbon consumption, and minimized wastewater discharge.

With such partnership, we empower textile brands and mills with a revolutionary coloration system for a more eco-conscious dyeing that enhances creations and contributes to a more sustainable future.

8. Archroma has been at the forefront of evolving sulfur dyeing since the 1980s. How has the journey been from the introduction of the low-sulfide DIRESUL RDT range to the present DIRESUL EVOLUTION BLACK LIQ?

Our journey in sulfur dyes has been nothing short of transformative. It began with the introduction of the low-sulfide DIRESUL RDT range back in the 1980s, marking the first steps towards more sustainable textile processes. Fast forward to today with our expanded DIRESUL RDT range that includes DIRESUL EVOLUTION BLACK LIQ, it is testament to our continuous pursuit of eco-advanced solutions.

Throughout this journey, we have remained committed to innovation, sustainability, and resource efficiency. We have advanced our solutions as well as redefined the industry's approach to sulfur dyeing.

We remain dedicated to pushing the boundaries of what's possible, striving for a textile industry is eco-conscious yet fulfilling the evolving trends of consumers today and tomorrow.

9. Can you tell us more about the state-of-the-art production facility near Barcelona where DIRESUL EVOLUTION BLACK LIQ is produced? How does this facility embody Archroma's commitment to sustainability?

Archroma continuously invests in equipment and technologies to improve and drive innovation. Our production facility for sulphur dyes is located in Castellbisbal, a small village near Barcelona.
This plant has produced several sustainable solutions over the last few years with Diresul Evolution Black being the latest achievements. Other sustainable solutions include Earthcolors®
, Fibercolors®, OX technology and Circle Black (salt free exhaust black dyeing).

10. Finally, as the world transitions to more eco-friendly processes, how does Archroma envision the future of denim coloration and the role of sulfur dyestuffs in that landscape?

As the world embraces eco-friendlier processes and solutions, Archroma envisions a future of denim coloration that is both more sustainable and vibrant. Sulfur dyes will continue to play a crucial role in this landscape. We believe that the denim industry

will increasingly rely on innovative and more environmentally responsible solutions to meet consumer demands for eco-advanced denim that feels good and looks good. We remain committed to driving these positive changes and pushing the boundaries of denim coloration.