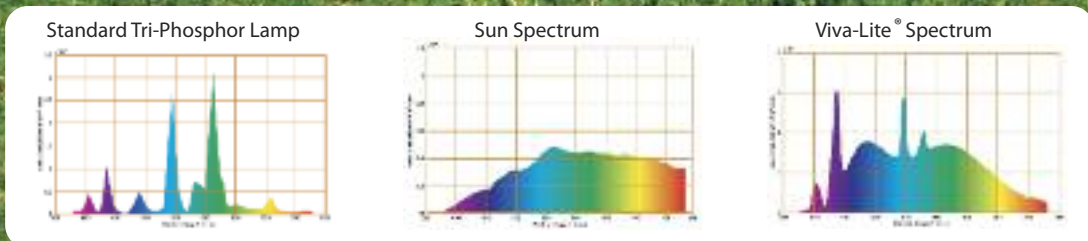


Viva-Lite

Full Spectrum Daylight Products

*Choose a better Light
for a better Life!*





“Until about one hundred years ago, we spent 90 percent of our day-time outdoors under natural light. Today, it's quite the opposite. Houses, cars, offices, schools, or shopping malls are all built to be energy-efficient and well insulated, protecting us from the sun's natural light and warmth.

As a result, we are continuously exposed to artificial lighting; it's no wonder we feel distressed and sometimes depressed.”

Toby Ruckert, Founder Viva-Lite®

Welcome to Viva-Lite

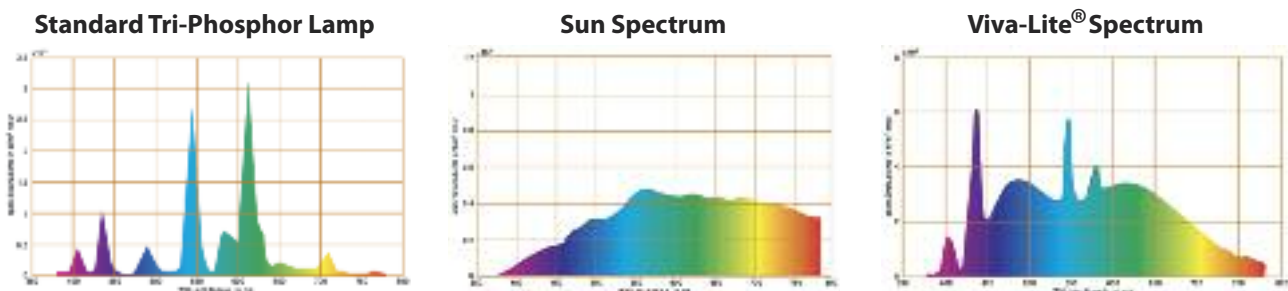
It's amazing to think that even though we spend two-thirds of our time living under artificial lighting, we're not paying attention to the consequences for our body and mind. Whereas people are concerned about organic food, pure water, and clean air, the element by which our very life came into existence - light - is often forgotten.

Viva-Lite® and its partners want to change that.

Our mission is to identify, create, and deliver the best possible light spectrum and solutions for our clients who have to live and work under artificial lights on a daily basis. Our standard is no other than the sun itself, as everyone knows how good we feel when the sun is shining.

Why is Full Spectrum Light different?

Take a look at the following three pictures which were taken using a spectrometer, a device used for analysing the actual electromagnetic spectrum of a light source:



A brief comparison shows significant deficits in the light spectrum of normal energy saving lamps or tubes when compared with the sun. Viva-Lite® Full Spectrum Lights instead balance these deficits using a highly specialised manufacturing process.

In addition to the spectrum analysis, a quick look at the colour temperature (in Kelvin) of Viva-Lite® full spectrum light shows a natural resemblance to that of sunlight:



Photo of painting taken under normal energy saving light with ± 3000 K colour temperature.



Photo of painting taken under sunlight in a moderate climate zone at noon, $\pm 5000-6000$ K.



Photo of painting taken under Viva-Lite® full spectrum daylight, ± 5500 K colour temperature.

What is Full Spectrum Daylight

A brief history of full spectrum lighting

The original idea of full spectrum light goes back over 50 years: During the early twentieth century, the US Navy actively researched methods to combat diseases that commonly appeared on submarines where no natural daylight exposure was available to the crew for many days, weeks – or even months.

Ultimately, NASA provided a solution by creating the first natural daylight simulating tubes with added UV output to help the crew stay healthy even without access to actual daylight.

In the early 1950s, Dr. John Ott made a name for himself with full spectrum light when he devised

a way to capture the growth of plants in slow motion for a Walt Disney® production that had to be filmed indoors. Initially, the plants failed to produce blossoms and even died because of insufficient daylight exposure; this eventually led to the creation of a new lighting range, specifically developed for this purpose.



The spectrum of Viva-Lite® full spectrum is continuous and all wavelengths of visible light are present.



The spectrum of ordinary daylight lamps (3-band) are discontinuous. Areas, where Viva-Lite® has colours, are dark.

In those early days, few could afford the expensive tubes that were made for such specific purposes, but nowadays the awareness of many people has changed.

After all, how many products do you know that can make such a great difference in your life by something as simple and easy as changing some light bulbs in your home or office?

“There are few products on the market I would recommend to all my friends. Viva-Lite I can, and do recommend.”

Thomas G. from Australia

Analysing the Spectrum - the Viva-Lite® Advantage.

Full Spectrum Light literally means "the sun's full light spectrum that reaches us on earth". Having evolved millions of years under this particular light, one would expect this spectrum to be ideal, balanced and healthy for the human mind and body.

And surely it is. Everybody knows the difference of how we feel on a bright sunny day in comparison to the moods swings we encounter on dark grey days. The reason for this are the differences in the spectrum between sunlight and artificial light.



When we look at a lamp we think produces *white light*, it does not mean that its light spectrum actually includes all seven colours of the rainbow.

It is well known that the millions of colours produced by TV's and computer screens are only generated by the combination of the three colours (R)ed, (G)reen and (B)lue. But since we are not able to consciously see the actual spectrum behind a light source, we tend not to question it and are therefore not always aware that common tubes and energy saving lamps have only those three peaks of colour (RGB) - the remaining areas, where Viva-Lite® shows colours, are dark.

But to see and feel good, we need all wavelengths of light. The goal of Viva-Lite® therefore is to offer its customers a balanced source of light, including a conti-

nuous spectrum, at a not too high, not too low colour temperature and a colour reproduction as close to the sun as possible.



Viva-Lite® Full Spectrum Light Tubes in action.

“In a primary school in America the number of days of reported sickness became significantly less when full spectrum lighting was used in the room.”

W. London: The Lancet.

Application & Uses

Seeing and feeling better are good reasons for switching to Viva-Lite® Full Spectrum Lights. But even though Viva-Lite® can light up any room with a better and more cheerful light, there are various applications and typical industries in which Viva-Lite® excels.

See better - Colour Fidelity.

A high colour reproduction is the most important tool for many companies and colour sensitive businesses. Viva-Lite® is a perfect solution as even for objects and materials containing fluorescent substances the colours are reproduced true to nature.

This makes Viva-Lite® full spectrum light so valuable for dentists

and dental technology where fabricated denture has to match 100% with the natural teeth.

Viva-Lite® full spectrum light is likewise popular in clothing stores and boutiques. Can you remember the last time when you bought a apparently blue shirt that suddenly was green when seen under natural daylight?

And last but not least, Viva-Lite® adds the right lighting to offices, studies and reading rooms where working under artificial light is on the agenda every day.



Viva-Lite® Full Spectrum Daylight for the Retail Industry.



“Now I can read without using my glasses because there is enough light and light of the right type.”

Jenny from New Zealand

» Through a skillful lighting arrangement with Viva-Lite®, presentation of goods can achieve significant turnover growth: foodstuffs appear more fresh, flowers and plants grow rapidly and are less susceptible to pests, paintings shine more, and jewellery glitters and sparkles more than before. «

Typical businesses and industries that realized the importance of good colour fidelity are:

- Retail stores (clothing, jewellery, florists etc.)
- Dentistry (dentists and laboratories)
- Graphic design, photo and printing industries
- Art galleries and museums

Feel better - Health and Wellbeing.

It's good to feel good! And it is a fact that light not only influences our immune system, but also our state of mind and general health and wellbeing.

The Viva-Lite® spectrum therefore aims to create an ideal ambience in homes and offices for working and living. After all, if the environment around us is welcoming, we automatically become more creative and productive.

With Viva-Lite® full spectrum lights, a lack of concentration due to ill-lit rooms can be counterbalanced at any time.

Eyestrain, headaches and fatigue can be kept at bay by minimising the otherwise adverse effects artificial lighting may have.

Flicker and bad lighting may be responsible for stress, aggressiveness, hyperactivity and difficulty

in learning in people who often have been diagnosed wrongly.

Viva-Lite® aims to lower stress levels, lessen headaches and improve communication and productivity in companies.

Where the health benefits of Viva-Lite® already have made a big difference:

- Schools, kindergartens, rest homes, universities
- Hospitals
- Offices and homes
- Factories, especially for shiftworkers

» Simply changing the lamps can be an easy solution to some of the above mentioned problems. If you have constant or regular headaches at the working place, just try it and find out for yourself how much the light's spectrum is influencing us every day. «

“The lights are great. I purchased them because I suffer from SAD. My husband found me easier to live with and although nothing is as good as direct sunlight for SAD sufferers, they did help.”

Cheryl B. from Australia

“We use the Viva-Lite full spectrum lights in our family room. The colour of them is a lot more natural than our other lights. In fact we are thinking about putting them in our childrens bedrooms as it just seems like the right thing to do.”

Charlotte M. from New Zealand



Work better - Economical and Performance Benefits.

Enhanced productivity and creativity, decreased errors due to lack of concentration and less absenteeism due to illness are all factors which can drastically improve with good lighting conditions and consequently provide clear economic advantages when compared to ill-lit offices.

Viva-Lite® full spectrum lights have an extraordinarily long life-

span while being low on power consumption. If Viva-Lite® full spectrum tubes are used in combination with electronic ballasts, besides significant savings on power of about 1/3, one can expect an even longer lifespan for the tubes: mostly double the normal lifespan, in other words, one-time less for change of tubes.

Studies also indicate that by using full spectrum lamps with a

high colour reproduction (>95 Cri), reading and working is easier under such lights.

» These are just a few examples where Viva-Lite® at this very moment and in many places around the world increases productivity, saves money and energy while improving the overall health and state of mind of people working under artificial lights on a daily basis. «

Obvious cost savings, increased efficiency and productivity have been observed by:

- Farmers, especially poultry farming
- Zoo's and animal homes (especially parrots and birds)
- Nurseries and green houses
- Offices, hospitals and the retail industry



“ I do feel better and now enjoy working in my office. I no longer feel eye strain after spending long periods in front of the computer screen. ”

*Technology Training Consulting Limited,
New Zealand*

“ We use Viva-Lite in our office at home. I think it has made a difference to my daily life, as I feel I get more done when I am in my office now. At first the Viva-Lite light colour seems really white, but my eyes quickly adjust to it, and then I don't want to go back into a room with regular lights. Also the fact that it is an energy saving bulb makes it even better! I am very happy with the light, and it was a great purchase. ”

Jacob E. from New Zealand

The Viva-Lite® Product Range

When we started Viva-Lite®, we wanted to create a complete full spectrum range using various lamp styles that are available in the market today. These lamps are based on different technologies and therefore suit different applications respectively. By creating a wide product selection, we enable our customers to simply change light bulbs instead of having to buy completely new fixtures!

Make the Switch to Full Spectrum

- See better: Excellent colour reproduction (95+ CRI).
- Feel better: Simulating daylight colour temperature (± 5500K).
- Work better: Increase alertness, creativity and productivity.

Product Type:	ESL	TUBES	CFL	HALOGEN
Colour Temperature	~ 5500K	~ 5500K	~ 5500K	~ 5500K
Colour Rendering	~ 95 - 98	~ 95 - 98	~ 95 - 98	~ 96 - 99
Bases available	E27, E14, B22	T8, T5	2G11, GX24, ...	MR16, GU 5.3
Integrated Ballast	✓	✗	✗	-
Dimmable	✗	✓*	✓**	✓
Energy Saving	✓	✓	✓	✗
Full Spectrum	✓	✓	✓	✓
Suits Standard Fittings	✓	✓	✓	✓
Most Common Uses	Living rooms, Home offices, Public facilities, Conference rooms	Offices, working, Indirect lighting, Factories, storage, Kitchen, furniture	Retail, offices, Public facilities, Hospitals, schools, Conference rooms	Accent lighting, Galleries, windows, Showrooms, shops, Homes, bathrooms
Typical Fixtures	Desk lamps, Table lamps, Floor lamps	Ceiling lamps, Suspension lights	Ceiling lamps, Suspension lights	Systems, Spot lights, Ceiling downlights

*Special dimmer switch needed.
** Some types only.

For further technical details please refer to our data sheets.

Make the Switch to Energy Saving

- Energy saving lamps last between 6 and 15 times longer than traditional lamps.
- 23 million tons CO₂ saved/year.
- € 9.3 billion saved/year (EU alone).

Viva-Lite® ESL - Energy Saving Lamps.



An energy-saving lamp with the full colour spectrum of sunlight, including some vital UV constituents.

Economic and design-wise alternative to the conventional low-consumption lamps with the

added healthful advantages in respect to performance, visibility and well-being.

Emits brilliant white light (colour temperature ± 5500 Kelvin) and offers excellent lighting values.

Advantages:

- Integrated electronic ballast.
- Flicker-free instant start, non-flaring operation.
- Power saving up to 80%.
- Attractive and innovative design.
- Pleasant and brilliant daylight.

» *Feel the difference:
It is pleasant to work and
read under Viva-Lite® full
spectrum lighting.* «



With ordinary tubes.



With Viva-Lite® Full Spectrum Light tubes.

Viva-Lite® TUBES - Fluorescent Tubes.



The Viva-Lite® full spectrum tube lights were developed to simulate natural daylight in closed rooms.

This style of full spectrum lamp was first used in space flights and in submarines.

Today they are seen in many shops, companies, offices, public places and in homes.

Their natural spectrum helps to reproduce colours true to nature and to create positive effects on body and mind.

Advantages:

- Near identical colour reproduction of natural sunshine.
- Excellent colour temperature in optimum daylight range.
- High-contrast vision.
- Sunshine-like shadow formation.
- Increased alertness and less error rates.

Viva-Lite® CFL - Compact Fluorescent Lamps.

A combination between the energy saving lamps and the spectrum CFL lights exhibit excellent properties in both light output and full spectrum.

Advantages:

- Near identical colour reproduction of natural sunshine.
- Natural daylight rendering and colour temperature.
- Fatigue-free vision and sunshine-like shadow formation.
- Attractive and innovative design.
- Pleasant and brilliant light.

Viva-Lite® CFLs are available in many different shapes and sizes. Unfortunately they are known under different abbreviations around the world - for example PL, TCL, 2G11, GX24, G7 and many more. For easier identification, we display a large selection of sockets on our website. If you have any questions, please contact us.



Viva-Lite® HALOGEN - Full Spectrum Halogen Lights.



There are ample reasons for using the Viva-Lite® full spectrum halogen lamps: their colour rendering resembles that of the sun up to 99%.

This means continuous and harmonious reproduction of colours and an optimum shadow formation. The light distribution is absolutely uniform and has no spots and patterns as in other cold light reflectors.

The illuminated objects present an outstanding display. Compared to a standard halogen lamp, the Viva-Lite® full spectrum halogen lamp has a lesser infrared component in the beam of light which reduces the outgoing heat in front, possibly reducing a "braising" or a "bleaching" effect on the illuminated objects.



With Normal Halogen.



With Viva-Lite® Halogen.

Advantages:

- Fits into any low-voltage (12V) standard MR16 socket of the GU (GX) 5,3 or QR-CBC 50/51 type.
- Available in various angles (10 and 36 degrees) and wattages (20W, 35W, 50W).
- Experience colours true to nature.
- Best suited for illuminating images/objects directly.
- Superb continuous and balanced spectrum.

We are continuously widening our model range. Please ask if you are looking for something in particular.

The Language of Full Spectrum Light

Bayonet (BC)

Push and twist base. Most common in Australia, New Zealand, Ireland, India and the UK.

Ballast

Regulates fluorescent lamps and limits the ultimate current to an appropriate level. Modern electronic ballasts are more energy efficient than older electromagnetic ballasts and eliminate visible lamp flicker.

Colour Rendering Index (CRI, in Ra)

An international method used to measure the quality of light and to rate a lamp's ability to render object colours. The higher the CRI the richer colours generally appear. The values range from 0 (worst) to 100 (sun light).

Colour Temperature (CCT, in Kelvin)

The colour of a light source relative to a black body at a particular temperature expressed in Kelvin (K). Lamps below 5000K tend to be more yellow/red (warm), lamps between 5000 and 6000K are viewed as white (cool), while lamps above 6000K tend to have a blue cast. Cool-coloured light is considered better for visual tasks. Daylight in moderate climate zones has a colour temperature of $\pm 5500\text{K}$ at noon.

Edison Screw (E27, E14)

Used worldwide. The standard E27 bulb is 27mm in diameter. The smaller E14 bulb is 14mm in diameter and particularly used for smaller decorative fittings.

Full Spectrum Lighting (FSL)

Light sources that produce a light spectrum that covers the entire range of visible light (380-700nm), no gaps in its spectral output, parts of the UV spectrum, a colour temperature of $\pm 5500\text{K}$ and a minimum CRI of 95+.

Light Flicker

Refers to quick, repeated changes in light intensity. It is caused when the voltage supplied (e.g. 50 Hz) is unsteady. These fine but annoying changes often cause headaches, eye strain and concentration difficulties. The use of high frequency electronic ballasts (20,000 Hz or higher) may result in more than a 50% drop in complaints of problems.

Light Therapy, Phototherapy

Consists of exposure to daylight or to specific ranges of light wavelengths or very bright, full spectrum sunlight, for a prescribed amount of time. Light therapy has been proven effective in treating conditions such as seasonal affective disorder, depression, sleeping disorders, skin diseases, neonatal jaundice and jet lag.

Lumen (lm)

A measure of the luminous flux or quantity of light emitted by a source. For example, a candle provides about 10 lm, whereas a Viva-Lite® T8 36W tube currently provides 2300 lm.

Lux (lx)

Typically used to measure the light intensity produced by a lighting fixture. The higher the lux reading, the more light the lighting fixture is producing over a given area. One lux is equal to one lumen per square metre. Important: The lux reading changes with the distance to the fixture.

Phosphor (Phosphorus)

An inorganic chemical deposited on the inner glass surface of fluorescent lamps. It is designed to absorb short wavelength UV-radiation and to transform and emit it as visible light. Ordinary fluorescent lamps use two to three phosphors while full spectrum lamps use a

minimum of five phosphors.

Seasonal Affective Disorder (SAD)

Also known as winter depression or winter blues, describes symptoms such as feelings of sadness and lethargy, increased appetite and increased sleepiness. Can be treated with light therapy.

Spectrometer

Specially designed instrument to analyse the spectrum of a light source. Similar to prism glasses where the white light is dispersed into the rainbow colours of the optical spectrum.

T5

Fluorescent lamps that are five-eighths of an inch (16 mm) in diameter. They are among the newest form of fluorescent lamps. Require an electronic ballast to operate.

T8

Fluorescent lamps that are eight-eighths of an inch (26 mm) in diameter. They are more energy efficient than the older T12 lamps.

Tri-Phosphor

Although the invention of tri-phosphor lamps can be seen as a real improvement compared to older standard fluorescent tubes, they only use three phosphors instead of minimum five used by full spectrum lights. Triphosphor lamps usually achieve a CRI of maximum 85.

Vitamin D

Vitamin D is a fat-soluble vitamin mainly derived from sunlight. Its synthesis in the human body is triggered by sun exposure (especially UV-B rays) to the skin. Vitamin D may play an important role not only for bones and teeth but also in the prevention of diabetes, cancer and heart attacks.



“ Light is invisible, that's why we take it for granted, but when you look behind the curtain of white light and see all the colors of the spectrum, you suddenly realize: white is not = white. ”

Margit Brusda, Co-Founder Viva-Lite®

Our Mission and Values

- To continuously create the best possible full spectrum lighting range.
- To give good health and happiness by offering an excellent and affordable product.
- To develop and grow, in individuals and in the general population, a knowledge and understanding of the vital role of light in health and wellbeing.
- To protect the environment by creating energy efficient systems, participating in recycling, and supporting regeneration and sustainability.
- To support research in the field of light and health.



“ Our birds feel great under Viva-Lite. We screwed the lamp into our normal ceiling fitting, which works absolutely fine. My headaches caused by looking into the computer screen for hours have been improved with the lights and our birds seem to be in a better mood even though it's cloudy and grey outside. ”

Iris from Germany



“ One of our clients is very happy with our new full spectrum fluorescent tubes. I too was surprised of how pleasant the light is. Our client told that it is as if there are no lights at all. She also told that there is much less reflection from the papers that are easier to read. Do you happen to have stickers that can be put on doors telling about the full spectrum lighting? I'd like to tell others too about the big difference between different lamps. ”

Work Safety Representative from Finland

“ These full spectrum bulbs are definitely the best I have used. The thing I like the most is the fact that they light up straight away and the light is actually nice and bright and easy on the eyes. It is a huge difference from fluorescent lights. ”

Simon F. from New Zealand

