

In motion, step by step

Sukano can look back on an eventful year. 2003 was characterised by a multitude of changes, new developments and implemented measures amidst a rapidly growing market. One particular challenge was the founding of Sukano Polymers Corporation in the USA. We now employ two members of staff in South Carolina, who look after both new and existing customers and projects. It is planned to build a new production facility already this coming spring.

In the past year, our main development activities focused on improving the features and productivity of the current SUKANO® product range, as well as implementing a fully integrated development process for customer-specific products. Furthermore, additional new machines have made it possible to emulate our customer processes. As a result, the prerequisites have now been created to enable us to react even more

swiftly and effectively to customer needs.

Intensive work was also carried out in the rapidly expanding field of UV protection masterbatches. In this respect, Sukano can draw on extensive experience gained from the successful application of UV masterbatches. You can read more about this topic in this issue of NewsLetter.

Over the past year, in the wake of Sukano's international expansion, all our process activities have been made even more customer-friendly and consistently integrated into a new EDP system. Here, particular attention was paid to ensuring that the system was sufficiently flexible to fully adapt to our organisation and culture. The system has been successfully implemented and will be put into operation from January 2004.

Besides organisational improvements and system changes, we continue to at-

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tach great importance to meeting customer requirements and discovering how to create value with our product solutions. An open, smooth information flow, coupled with a sound knowledge of existing and future market trends, are essential if this complex task is to be pursued in a successful and ongoing manner. This requires close personal contact with the people or organisations involved. In this connection, we would like to introduce our business partners to you in the future editions of NewsLetter. This issue contains an interview with our long-standing business partner in Austria.

*Thomas Weigl,
Sales and Marketing Manager*

*We wish you and your family all the
very best in 2004!*



Protection and Safety with SUKANO® UV Masterbatches

The provision of effective UV protection is a key element of quality assurance when it comes to developing and producing SUKANO® UV Masterbatches. In order to guarantee the desired UV properties in the end application, Sukano provides comprehensive Weather-Ometer (WOM) data for its UV products. The following article shows how WOM data can be compared with actual natural weathering.

By Daniel Ganz

Business Development Manager

A comparison of UV rays

The ultraviolet light (UV 295–400 nm) in the sunlight reaching the earth's surface causes a greater degree of degradation than visible (400–800 nm) and infrared light (IR 800–2450 nm). As soon as a polymer absorbs UV light, the polymer chain is broken into smaller pieces by means of a photochemical reaction and the polymer starts to lose its mechanical and optical properties.

PET absorbs solar UV light between 295–325 nm and requires maximum protection in this range.

SUKANO® UV Masterbatches in use

Sukano UV products are used in outer layers up to 50 microns thick and protect the inner layers from UV radiation like a filter, whereby the transparency and colour of the polymer remain unaffected. The outer layer itself is protected by a selection of UV absorbers and stabilisers. The level of protection is measured by comparing the WOM data.

Solar radiation at sea-level

The map below shows the solar radiation (295–2450 nm) at sea-level at any given place on the earth, measured in kilo-Langley (kLy = irradiation energy). By using this map, it is possible to estimate the degree of UV degradation of a given polymer. Generally speaking, a polymer takes twice as long to be destroyed in a place with 100 kLy as in one with 200 kLy. In other words, a polymer product with an estimated UV protection of 10 years in Central Europe (90 kLy) will only last five years in Australia (180 kLy).

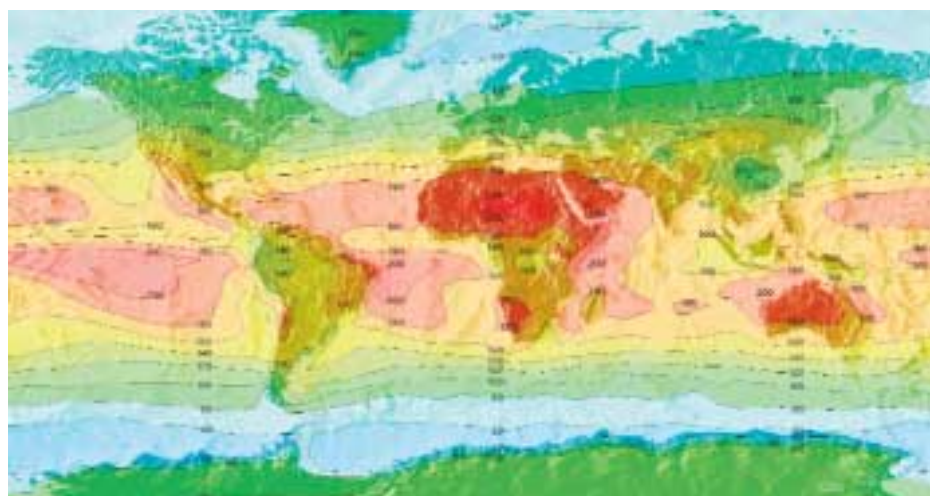
For a more accurate evaluation, the actual measured UV irradiation at the places concerned should be compared. This also takes the elevation and angle of UV exposure into account.

Weather-Ometer versus natural weathering

The WOM simulates the natural sunlight at sea-level and uses a xenon arc lamp device, which has an almost identical irradiation (i.e. intensity of light) in the range of 295 to 370 nm. In order to produce the same UV irradiation energy levels with the Weather-Ometer, it takes around 1'400 hours to simulate the UV irradiation of one year in Basel and, in contrast, approx. 2'300 hours for that in Florida.

Accelerated weathering

The irradiance of a Weather-Ometer is controlled at 340 nm to a level of 0.35 W/m². In some cases, accelerated weathering devices (e.g. QUV-B) are employed that use light at levels and wavelengths which do not naturally exist on the earth's surface. Such irra-



Complementary: Ciba Specialty Chemicals Inc., Basel, Switzerland
Data provided by the Surface Radiation Budget Project at NASA Langley Research Center



1 kLangley = 1 kcal/cm² = 41.84 MJ/m²
1 kLangley/year = 1.33 W/m²

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Applications using SUKANO® UV Masterbatches

By Ermes Candotto

Application Segment Leader/Area Sales Manager

The previous report shows that the properties of polymers are significantly affected by such environmental factors as light, oxygen in the air and temperature. In addition to an optical quality loss, these influences also have a detrimental effect on both the mechanical and physical quality of the polymer.

As far as UV protection of polymers is concerned, we differentiate between the protection of the polymer and that of its contents.

Light-sensitive contents, such as foodstuffs, beverages, cleaning detergents or other such products, need to be protected from ultraviolet rays by means of a specially formulated polymer (content protection). In the case of outdoor applications, such as shelters, the polymer must be protected against weathering (polymer protection).

SUKANO® UV Masterbatches are mainly used as content protection to protect pre-packed products in PET films or PET bottles.

SUKANO® UV Blends or UV Masterbatches are employed as polymer protection in outdoor applications to protect PET/PETG sheets and twin wall sheets against weathering. SUKANO® UV Compounds are principally used to protect polycarbonate applications against adverse weather conditions.

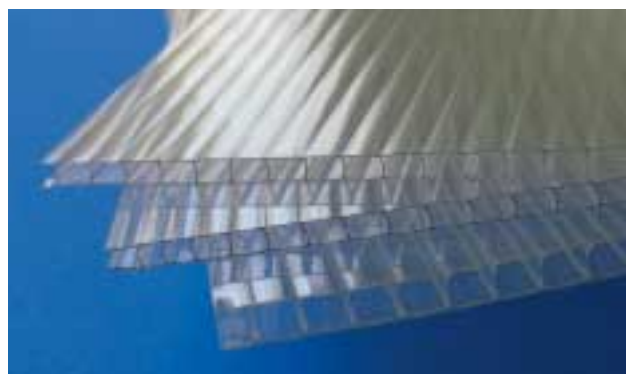
Sukano produces tailor-made UV-protection solutions, which are developed together with the customer according to the specific requirements of the end application.

Typical application examples in the sphere of polymer protection are the

protection against weathering of twin wall sheets by means of SUKANO® UV Compound (see illustrations).

Typical application examples in the sphere of content protection are transparent PET film blister packs using SUKANO® UV Masterbatch or combined with SUKANO® Colour Masterbatch (see illustrations).

Theoretically, there are no limits to the variety of UV formulations. Deciding factors are, however, a thorough knowledge of both market and customer needs, coupled with the corresponding application requirements. These serve as a basis for drawing up a successful solution in terms of cost, time and usefulness.



Twin wall sheets and sheet extrusion
(Polymer protection)



Amber bottle
(Content protection)

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diation can exceed the bond energy of the polymer molecule and cause immediate unnatural photochemical degradation.

Other factors influencing outdoor weathering of polymers

UV irradiation has a decisive effect on the destruction of a polymer. Other factors include humidity, elevation, an

acid atmospheric environment, angle of exposure and application design. A useful way of simulating humid and hot weather conditions is a WOM wet device, which switches every two hours from a dry (102 mins, 63 °C, 50% relative humidity) to a wet cycle (18 mins, 42 °C, 100% relative humidity). Unlike outdoor weathering, such WOM data continually delivers com-

parable data from test to test, as the same meteorological conditions always exist.

If you would like further information on UV protection of polymers, please do not hesitate to contact us.

Sukano Product Portfolio

SUKANO® Slip/ Antiblock Masterbatches

Used by producers and converters of polyester films and sheets. Enables easy winding/unwinding of rolls; also has good denesting properties for cut sheets and thermoformed articles made from PET, PETG, CPET and PC. High transparency

SUKANO® Nucleating Masterbatches

Allow a controlled crystallisation of CPET trays and improved mechanical properties. PP converters of injection moulding parts achieve higher transparency, shorter cycle times and improved mechanical properties

SUKANO® Antistatic Masterbatches

Reduce the static load of sheets, films and bottles, thus helping to avoid dust adhesion and damage due to uncontrolled discharge

SUKANO® Colour Masterbatches

For a variety of applications such as for films, bottles and sheets in PET, PETG, PBT and PC. Broad range of standard colours and customised colour masterbatches

SUKANO® UV-Inhibitor/ UV-Absorber Masterbatches

For light-sensitive products (e.g. food, cosmetics, pharmaceuticals, etc.) that need to be protected from UV-light (content protection). Also used to increase the UV-stability of sheets for outdoor applications (polymer protection)

SUKANO® Impact Modifier Masterbatches

Used for injection moulded parts, films and sheets with high impact requirements

SUKANO® Mould Release Agent Masterbatches

Formulated for bottle manufacturers and injection moulders to achieve improved "antitack" and mould release

SUKANO® Flame Retardants

Halogen-free flame retardant Compounds for fiber applications. Flame retardant Masterbatches for the manufacture of transparent sheets, monofilaments and injection moulded parts according to international fire protection classifications

SUKANO® Matting Agent Masterbatches

Various levels of matting are used by bottle manufacturers to achieve a "frosty look". The gloss on films, sheets and profiles can be reduced without using matting rolls

SUKANO® Compounds

Compounds are homogenous granulates and consist of additives that are thoroughly dispersed in a polymer matrix. The compound exhibits the properties for the end product and requires no further modification

SUKANO® UV Masterbatches at a glance

Content protection		Polymer protection	
Basic polymer	SUKANO® UV protection	Basic polymer	SUKANO® UV protection
Copolyester	G uv S223-BL	Copolyester	G uv S273-BL3
PETG		PETG	G uv S273-N
Polyester amorph, APET	T uv S496	Polyester amorph, APET	T uv S300-BL3- (C) T uv S300-N- (C)

FOCUS on Austria and Bavaria

The numerous representatives abroad, or 'business partners' as they are known at Sukano, play a key role within the company as agents and distributors.



Axel Träxler: "The location determines the point of view".

Sukano's business partners perform their tasks across their national and regional markets with expert knowledge and a high level of commitment.

In the future NewsLetters, Sukano will be presenting each of its business partners individually. In this edition, readers can meet Axel Träxler, who, through his ATI industrial goods agency, has been working for Sukano for over 10 years. Thanks to his extensive knowledge of the plastics industry, his openness and his perseverance, Axel Träxler has had a significant influence on Sukano's strong market position within his sales territory.

"A common perspective is the deciding factor"

Interview between Axel Träxler, Sukano Business Partner for Austria and Bavaria, and Silvia Tischhauser, Area Sales Manager and editor of the Sukano NewsLetter.

Silvia Tischhauser: What is the task of an agent for a masterbatch manufacturer?

Axel Träxler: As a link between the two parties, he coordinates the market requirements of the plastics-process-

ing industry with Sukano. These needs are analysed, reported and further pursued.

An important task of the business partner is to bring together the various company cultures, as well as the different regional and national characteristics, so that the notions regarding potential solutions can be understood, realistically assessed and correspondingly implemented from the very beginning.

Here the accurate assessment of both the technical feasibility and adequate cost-benefit profiles, play a central role.

Silvia Tischhauser: Where do the main problems lie with regard to implementing projects?

Axel Träxler: In order to launch a project successfully, a sincere relationship and an open dialogue with all those concerned are of vital importance right from the outset. Access to the project partner's internal technical facilities requires an advance display of trust, that, however, pays off when it comes to achieving committed, successful product development. So-called confiden-

tiality agreements are then, where necessary, more a matter of form.

Silvia Tischhauser: How can promises of value be kept?

Axel Träxler: A SME such as Sukano can only keep its value promises to its customers if it is kept constantly and fully informed about the market requirements and perspectives. This creates the basis for correctly positioned product solutions, which is what the market expects from a competent specialist.

Silvia Tischhauser: Is it possible to measure success? Does a success model exist?

Axel Träxler: I would like to emphasize that yes, success can be measured by the sustainability of a mature product development. Many solutions with masterbatches are compromises, which, for example, are made due to a lack of suitable plant configurations, but which are soon rejected again for reasons of cost.

Success models are the result of an open exchange of information: for example, when cooperative action results in trial series with innovative products leading to optimised problem solutions, which then end up reaping rewards for all concerned.

At the end of the day, however, a common perspective is the deciding factor.

Silvia Tischhauser: What is your main message to Sukano on behalf of your sales territory?

Axel Träxler: As a representative of Sukano, I understand my task to be to encourage this technically innovative company to meet the market requirements of the plastics-processing industry, with its great overall development potential, by means of a professional approach and the necessary swift actions.

Sukano Business Partners

Austria, Bavaria

ATI Industriegütervertretung
Axel Träxler
5322 Hof bei Salzburg
Phone +43 6229 28 46
ati.axel.traexler@sbg.at

Nordic

Kraft Chemicals Nordic AS
Trond B. Berg
0283 Oslo
Phone +47 22 51 10 08
berg@kraft.no

France

Tracym
Marcello Mutti
75006 Paris
Phone +33 1 4413 4025
info.tracym@wanadoo.fr

Spain

Quimigranel S.A.
Rosendo Pico Torres
08021 Barcelona
Phone +34 93 241 38 60
rpico@quimigranel.es

Portugal

Quimigranel Prod. Quim. LDA
Francisco Alves
1801 Lisboa Codex
Phone +351 21 861 30 00
f.alves@quimigranel.pt

Greece

Abbatis-Liokis S.A.
Andreas Abbatis
Athen 104 44
Phone +30 210 51 35 112
abbatis@hellasnet.gr

Poland, Russia, Czech Republic

Wieslaw Steslowicz
4055 Basel
Phone +41 61 382 80 86
stes@freesurf.ch

Israel

Tuvi Soreq
Sorpul 2000
Tel-Aviv, 61140
Phone +972 3 5612 896
tuvi@sorpul.co.il

Middle East

Marji Technology Corp.
Samir Marji
13115 New Zarka,
Jordanien
Phone +962 79 538 194
wipak@marji.com.jo

Australia

Multichem Pty Ltd.
Ian Clark
Melbourne, Victoria 3101
Phone +61 3 98532911
iclark@multichem.com.au

New Zealand

Polychem Marketing Ltd.
Ivan Tottle
Auckland
Phone +64 9 573 3700
itottle@polychem.co.nz

Korea

WOORIN Inter-Corp.
Kim Joung-Woo
Seoul, Korea
Phone +82-2-2202-6611
jwkim@woorin.com

Japan

Kanematsu KGK Corp.
Akira Shimizu
8510 Tokyo
Phone +81 3 3557-2576
a-shimizu@kgk-j.co.jp

India

Jayvee Organics &
Polymers Pvt Ltd.
J.R.Shah
Mumbai 400
Phone +91 22 838 11 39/
835 02 43
javee@bom3.vsnl.net.in



Sukano Products Ltd

Chaltenbodenstrasse 23
CH-8834 Schindellegi
Schweiz
Tel. +41 (0)1 787 57 77
Fax +41 (0)1 787 57 78
eMail: info@sukano.ch
Internet: www.sukano.ch

Sukano Polymers Corporation

P.O. Box 580
Duncan, SC 29334
USA
Tel. 001 864 486-1478
Fax 001 864 486-3681
eMail: jeffrey.best@sukano.ch

New members of staff



Since 1 July 2003, **Sven Pinton** has been employed at Sukano in the field of IT Support. His task is to support the Sukano companies in their day-to-day business and

ensure that the network (LAN) interlinking them functions without a hitch.

Before he came to Sukano, 33-year old Sven Pinton worked as a consultant. There he played a role in setting up business processes for a wide variety of manufacturers in the field of Enterprise Resource Planning (ERP). These activities also enabled him to correspondingly implement and consolidate his practical experience.

Thanks to his basic training in the field of mechanics, coupled with further specialised training as a certified operational technician (Betriebstechniker), Sven Pinton brings with him the necessary expertise to competently plan and manage IT projects.

His task of ensuring the efficient running of the EDP system, is not only of key importance for the company, but also in the end benefits Sukano's clients all over the world.

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