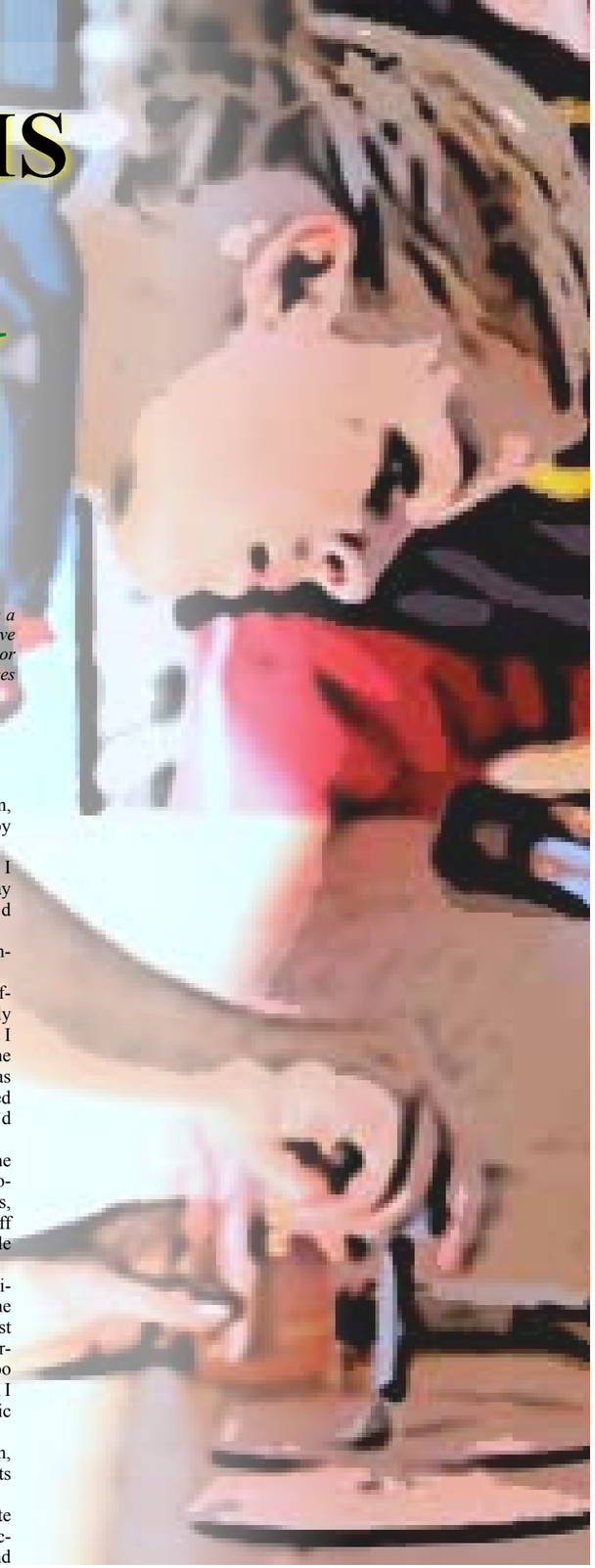
TABLE TENNIS IS GOING GREEN

And Calling Players' Moral Attitudes Into Question

by Jens Felke

Jens Fellke is a former top-ranking player from Ängby in Sweden. He is now a journalist and the author of When the Feeling Decides, a biography of Jan-Ove Waldner. Here he relates the history of speed-gluing from the moment when Tibor Klampar suddenly understood the 'click' connection through to the consequences of the ITTF's zero-tolerance policy.



"It was as if I'd won the jackpot."

This is how Hungarian player Tibor Klampar recalls the moment when, through sheer chance, he discovered the phenomenon of speedglue, thereby changing the sport for ever, from one moment to the next.

"I was in a training session with my brother, and was playing poorly. I stripped the rubber off the racket and stuck on a new one. I continued to play poorly, so I stripped the new one off and replaced it with the one that I'd played with at the outset."

As he heard the ball make that clicking sound, there was a 'click' in Klampar's mind.

"I noticed that my original rubber had suddenly become much more effective. I was getting greater spin and speed in my strokes. I immediately realised that this had something to do with the glue, and from that moment I began gluing before every training session and before every match. On some occasions I was doing it six times a day…The improvement in my game was unbelievable. I was able to take a relaxed approach and no longer needed to invest so much energy for each stroke. I was able to play strokes that I'd never managed before."

In those days it was usual to break in new rubbers for a week or two in the run up to a competition. Klampar succeeded in keeping the speedglue process secret for over a year before his national team colleague, János Tákacs, caught him in the lavatories with a tub of glue, his racket, and a stripped-off rubber. The secret was out; the news spread like wildfire through the table tennis community.

"The idea of gluing rubbers repeatedly was revolutionary," comments Mikael Appelgren, European singles champion 1982, 1988 and 1990, and the first of the Swedish players to begin speed-gluing around 1979-80, "Most players were still sceptical and thought that the risks were too great. I personally started off gluing only on the forehand. The backhand was far too sensitive- because the ball left the racket much too quickly, and to start with I had problems with the service return and with blocking. But I got a fantastic spin on the forehand topspin."

So what was actually happening in the rubber when Klampar, Appelgren, and all the other players applied glue to their rackets? Why did their shots suddenly have so much more speed and spin?

"When a player applies glue to his rubber, the gaseous solvents permeate into the sponge and through to the top-sheet," explains Georg Nicklas, Doctor of Physics, former German League player, founder of the Donic brand manufacturing company, and now major shareholder and managing director of ESN Elastomer GmbH, a company that produces many of the best rubbers for the leading brands in a factory in Bavaria.

"On its way through the sponge and the topsheet, the solvent creates space for itself – in equal amounts in all directions. It acts like a spring between the molecules of the rubber, which becomes distended. The rubber becomes taut and transfers more energy to the ball on impact. That is the reason why spin and tempo are increased when a speed-glued rubber is used.

"When the rubber molecules become taut, the rubber itself distends and becomes larger and softer. The feeling at the point of impact of the ball is intensified. The combination of greater rotation and more feeling means that the player can attain faster topspin, while at the same time feeling more secure."

No wonder that Klampar thought he'd won the jackpot when he discovered the speedglue effect!

It was not just the players' forehand topspin, but the entire sport of table tennis which rapidly began to take great strides forward.

"The ball was more effectively surrounded by the rubber, and so it was easier to return it with spin after your opponent had hit it, rather than just blocking it," says Stellan Bengtsson, world singles champion in 1971, who worked as professional coach for a variety of national teams and clubs after ending his playing career.

"The topspin players quickly learned to close the racket angle a bit more and to hit the ball before it reached the highest point of the arc. They no longer needed to reach out so far and were able to start the forehand topspin at hip level. Now you could hit the ball more or less straight on, and not so much from below to above like you did before. And you got lots of power into the shot with far smaller movements."

The other Swedish top-ranking players soon discovered, as Appelgren had done, the benefits that speedglue had to offer.

"Now you could play long service returns and get the opponent to play a topspin stroke. Before the gluing it was a big risk to counter attack by looping the ball back, but now one could counter attack by looping quite safely, comments Jan-Ove Waldner, world singles champion in 1989 and 1997, Olympic singles champion in 1992 and European singles champion in 1996.

"I was now able to get significantly more points back in the court- as did many others," explains Jörgen Persson, Swedish European singles champion in 1986 and world singles champion in 1991.

Topspin duals began to develop, and speedglue allowed the players to 'fish' several metres away from the table, in other words take their time to deliver the ball to the table, and win points in so doing.

During the 1980s, speed-gluing became a game-within-a-game; a ceremony that involved the players in coating their rubbers with the right amount of glue in order to obtain the greatest impact. The intensity of the resulting characteristic 'click' revealed whether or not the speed-gluing had been successful. Players speed-glued in hotel rooms, and the highly flammable tins of glue were hidden in a variety of bags and smuggled onboard aircraft, even though as a hazardous substance they should in principle have been transported separately.

Table tennis became an equipment-based sport, requiring players to invest considerable time and mental energy in preparing their rackets.

During the 1980s, no voices were heard protesting that speedglue could be damaging for both players' health and the environment. Players continued to coat their rubbers and exploited the wonderful effects of the solvents when playing at the table. But in December 1992 - five months before the world championships in Gothenburg – the International Table Tennis Federation made a shocking announcement: speedglue was to be banned with effect from January 1, 1993.

There were several reasons behind this drastic change of rules by the ITTF. The most important was the fact that, during the Scottish championships, a player had knocked over his can of glue, allowing the contents to spill out. The vapours that escaped caused the collapse of the player. In Japan, the police raided a table tennis shop and confiscated the glues that young people were buying in order to 'sniff' them.

On top of this, Rahul Nelson, editor of the journal Deutscher Tischtennissport, wrote several alarming articles about the health risks of the glues. One chemist related that there had been at least five instances where skin contact with toluene had resulted in birth defects in newborn babies. Another reported that the toxic solvents could get into the bloodstream through the skin. Scientific findings proved that speedgluing was harmful to health. Christian Palierne, former physician to the French national team, lead a research project into the consequences of speedgluing and published this statement in the journal mentioned above (Nr. 11/1992):

"It has been proved beyond doubt that inhaling solvents during the speedgluing process has side-effects. The trainers must ask themselves whether they really can be answerable for allowing 11-13-year-olds to use speedglue."

Dr. Palierne also cited the toxic effects that threaten the nervous system during and after speedgluing: headaches, concentration problems, poor awareness. His advice: wear a gas mask when speedgluing rubbers.

Professor Zarko Dolinar, who was himself once a world-class player and was a world champ -ionship singles finalist in 1955, came up with similarly dramatic findings after conducting tests on animals. What concerned him most was the long-term effect of solvents on the cells of the body – he warned that children's pulmonary alveoli, which were still at the growing stage, were especially at risk. The new research results prompted a unanimous request to the ITTF President at the time, Ichiro Ogimura, to ban speedgluing.

The ITTF duly announced a ban – resulting in an immediate outcry from the table tennis world. The German table tennis association stood firmly behind the ITTF's drastic decision. The players, headed by reigning European champion Jörg Rosskopf, warned that health had to take top priority. But others did not share his view. The brand owners and the trade did not want any change. The players' organisation, CTTP, chaired by Jörgen Persson, voiced loud protests. The players claimed that there were more important things in table tennis in need of change and that the decision was too close to the world championships in Gothenburg. Waldner was also opposed to the idea because he was convinced that any ban would open the door to cheating.

The ITTF bowed to the protests and repealed the speedglue ban only two months after its introduction. The chief reason seems to have been the lack of reliable measuring equipment that could have ensured compliance with the rules. By way of compromise, it was decided to eliminate the most dangerous glues through control of the market. A new rule obliged players to use approved glues, in precisely the same way that they were obliged to use approved rackets and rubbers. The glue manufacturers had to send their glues to the ITTF, who in turn had their content analysed in chemical laboratories. The glues containing the most dangerous substances, including toluene and trichlorethylene, were banned.

The approved glues were less toxic and thus weaker. This meant that the solvents that were necessary to make the glue volatile evaporated more quickly from the rubber. The clicking sound, which is the indicator of the speedglue effect, lasted only a couple of hours, compared with the six to seven hours provided by Vulcofux and other strong glues used prior to the alarm signals and the ITTF regulation.

By way of compensation for the weaker glues, and in order to retain the speedglue effect, players began to glue much more frequently. While gluing might have been a ceremony in the 1980s, in the 1990s it became a ritual. The players began gluing their rubbers several times a day even before the tournaments had begun, and a few more times on the competition day itself. They kept the rubbers in special bags and cases. They devised their own glues. Ductile adhesives that held the rubber onto the racket were mixed with more volatile glues that quickly penetrated into the rubber, generating the desired effect. With almost scientific meticulousness, the rubbers were prepared a few hours before important matches and finely tuned with a final glue application shortly before the match began: a fairly short interval was preferable between glue application and game for the forehand, perhaps somewhat longer for the backhand, so that the slightly drier glue was responsive to the need for better control.

"There was pure hysteria," says Jan-Ove Waldner. It was even worse when the larger-diameter ball was introduced after the Olympic Games in 2000. Everyone started fully gluing both forehand and backhand in order to compensate for the slowness of the larger ball.

This intensified speedgluing euphoria quickly spread to all classes of play, amongst players of all ages and in all part of the world. Almost every competitive player had his can of glue and followed the example set by the top-ranking players, with increasingly frequent glue applications prior to training and before competitions. The sales of glue increased dramatically. Vast quantities were sold, and the dealers made handsome profits from this trade.

The alarming reports written by the medical experts became more widely known and resulted in the provision of special rooms with additional ventilation systems, or opening windows, that were put at the disposal of the players using speedglue.

"This situation damaged the sport's image," says Stellan Bengtsson. "In my local club in Falkenberg, on the west coast of Sweden, the top players held their training sessions directly after the beginners. So when parents came into the changing room to collect their youngsters, they saw a dozen guys in track suits wearing gas masks. The bewildered parents thought they'd opened the wrong door and had stumbled into a chemical warfare defence exercise."

Even though the ITTF's brief speedgluing ban in 1993 had ended in retreat, it was nevertheless a first step in the direction of more environmentally friendly table tennis. Most of the glues used by the top players prior to the ban were not permitted by the International Federation and were replaced by ones less harmful to health. Over a period of time, the manufacturers produced glues which required fewer warnings, meaning that some of the problems disappeared. But the top players didn't use these glues because they didn't produce the same speedglue effect in the rubbers.

However, the debate about the research results and the compromise that was subsequently worked out had sown the seeds of a new 'green' way of thinking for the table tennis fraternity. The choice of equipment made a difference in terms of environmental impact, both on a global scale and for each individual. This was so not only where glues were concerned, but also the varnish on the racket and the substances used in manufacturing the rubbers.

The German manufacturer ESN Elastomer – a newcomer on the market - had in 1991 taken up the challenge of competing with the handful of Japanese and Chinese manufacturers who at that time dominated the world market in rubbers for competitive players. This company quickly saw both the ethical and commercial possibilities of marketing itself as more environmentally friendly. It began efforts to incorporate the speedglue effect into the rubbers themselves. A bold idea and a huge challenge. Up until that point, some companies manufacturing rubbers had tried to adapt their products in line with speedglue usage through producing softer rubbers that allowed the solvents in the glue to penetrate more readily and thereby intensify the speedglue effect. ESN chose to pursue a radically different approach.

The company opposed the whole concept of speedgluing and wanted to prevent players putting their health at risk. Its vision was one of a future market that would allow consumers to choose their products according to their environmental conscience. ESN wanted to make a real contribution in this direction.

In parallel with these developments, the long-established manufacturer Butterfly, which had been selling rubbers since the 1950s, was pursuing an intensive development programme. Finally, after a huge amount of effort, many tests and several years of exhaustive research work, both companies were – independently - successful. Towards the end of the 1990s, both of them launched their new technology – rubbers with integrated speedglue effect – onto the market, ESN with TENSOR, Butterfly with High Tension.

But there were problems. The rubbers with integrated speedglue effect were not quite as fast, nor did they generate as much spin as speedglued rubbers. According to ESN's own calculations, the models in the 2004 range produced two per cent less speed and five per cent less spin. A modest difference, once might think, but one that would be keenly felt by the players. This can be illustrated by comparison with the hundred metre race: one sprinter might run it in 10.0 seconds, another in 10.3 seconds. The difference is "only" three per cent, but when it comes to passing the finishing post, it still means humiliation for the loser. And so such progress – the greatest innovation in rubbers since MarkV and Sriver appeared on the market in the 60s – did not signify any breakthrough for the top-ranking players. They carried on gluing in order to remain in competition with the best.

Independently of the players' attitudes, a 'green' approach was gaining ground ever more rapidly in table tennis circles. It was given a significant boost through the Agenda 21 of the International Olympic Committee (IOC), which was adopted in Rio de Janeiro in 1999. This 50-page document states that all those involved in sport bear responsibility for future generations and must assume this responsibility. That sport must play a significant part in safeguarding health. That equipment which is harmful to health or the environment must be avoided. That the sports goods industry must reduce its environmental impact to a minimum.

For the table tennis fraternity, this brought the issue of speedgluing sharply into focus once again. The debate was fuelled by new reports that were not without influence on the delegates of the 205 ITTF member states who determine the Rules. But Odd Gustavsen, Chairman of the ITTF Equipment Committee does not believe that the findings had a decisive effect on the subsequent vote.

For opponents of speedgluing, the arguments were convincing, but not convincing enough to sway those who did not take the health risks of speedgluing seriously.

"It was really more of a process," says Odd Gustavsen, "a slowly evolving realisation on the part of the member states that the toxic solvents in the glues were harmful to health and that the ITTF had to react to this."

By 2004, the ITTF was ready to tackle the problem, along with all its consequences. In response to a proposal by Japan, a clear majority of members voted to ban solvents in glues used for speedgluing rubbers. The initial intention was to introduce a ban with effect from 2006, but protests from players, manufacturers and national associations, combined with the need for new test equipment, delayed implementation until after the next Olympic Games in Beijing.

A few years after the Doha decision of 2004, a number of so-called 'boosters' (tuners, enhancers) appeared on the market; these were liquids

containing smaller quantities of solvent compared with the speedglue glues. These boosters could also be applied to the rubber before it was glued to the racket. A sort of 'Speedglue-Lite' which – although the rubber was manipulated – got a green light from the ENEZ test machines since these only checked that the rubbers were not speedglued.

The market's reaction in the form of new ersatz-glue products, and the sensational case of a Japanese player who suffered severe allergic shock and had to be rushed to hospital, caused the ITTF to take further action. The Japanese player survived, but the product he had been using was one that was approved by the ITTF and the question was begged: what would have happened if he had died? Would the ITTF have been held accountable by the relatives and been obliged to pay compensation?

In order to clean up table tennis even further, to eliminate ambiguities in the rule-book and to exclude the possibility of liability for damage to health, a new, tighter ITTF glue ban was issued in spring 2008. It came into force on 1 September 2008, is enshrined in point number 2.4.7 of the ITTF rules, and states:

The covering material should be used as it has been authorised by the ITTF without any physical, chemical or other treatment, changing or modifying playing properties, friction, outlook, colour, structure, surface etc.

In other words, no form of manipulation is permitted. It is not permissible to apply solvents or anything other than water-soluble glue or adhesive film onto approved rubbers before they are in turn glued onto the racket. No oils, boosters, no additives whatsoever. The approved rubber must be allowed to air for at least 72 hours after removal from the packaging in order to eliminate any solvents present in the rubber or the blade as a result of production processes.

The rubber must then be attached to the blade using water-soluble glue or adhesive film. This means that there is no ambiguity when checks are carried out and the rule can actually be applied in practice. End of story.

In summer 2008, the ITTF found itself at the center of a heated debate concerning the glue ban. Chinese table tennis companies complained that certain rubber manufacturers were being favoured by the new rule – which would result in chaos on the market. There were also allegations that the ENEZ device was unreliable. The Chinese manufacturers proposed that the solvents should be allowed to run out gradually. They argued that concentrations with the strength of normal rubbers treated with boosters should be allowed until 2010, and lower values until 2012 – measures also favoured by the Swedish company Stiga.

The Japanese table tennis players' organisation, JAM, took the view that the ITTF should delay introduction of the ban until the manufacturers had sold all their stocks of boosters. It was argued that if this was not allowed to happen, then numerous companies might go bankrupt. JAM also demanded a clearer definition as to which solvents the ITTF sought to ban and what tolerances would be stipulated, since no monitoring device can be perfect.

The Chairman of the ITTF, Adham Sharara, was not prepared to listed to the entreaties of the brand owners who sought to have the speedglue ban delayed. He pointed out that their protests were not backed by the national associations and that the ban on boosters and other additives had been passed with a 90% majority. He also regarded the ITTF's repeal of the speedglue ban of 1993 as a big mistake.

"Now, in 2008, there is no going back. We've made enough compromises and the end of the Olympic Games in China spells the end of speedgluing and all other forms of manipulation of the rubbers. We have a rulebook. We have monitoring equipment which will become more sophisticated. We are on the right path. It would be irresponsible to ignore all the reports about the danger of certain chemicals in our society and in our sport. Any manufacturers marketing non-approved products will be punished."

New rules almost always entail questions and grey areas, margins that the Articles and monitoring equipment cannot delimit, no matter how clear everything seems to be. In this respect, the decision by the ITTF to ban completely any manipulation of approved rubbers is no exception.

As mentioned earlier, the ITTF did not succeed in implementing the speedglue ban it had announced in 1993. When a fresh attempt was made in 2004, the issue had been better prepared and democratically handled within the organisation itself – and there was a greater environmental awareness by that time.

At the time of the 2004 speedglue ban, the ITTF also held a trump-card in its hand – there were two monitoring devices which could be further developed and refined: ENEZ and RAE.

ENEZ, which looks rather like an oversized racket-carrier, and which has been produced since 2007, was developed specially for use in table tennis and for the ITTF in order to reveal speedglued rackets using simple means. In order to be usable throughout the entire table tennis world, ENEZ was also designed to be transportable and cheap, both to purchase and to maintain. RAE is a more precise, more complicated and more costly device, used by the American military, amongst others, for the purposes of measuring chemical substances present in the air during chemical warfare. RAE is intended for use as a back-up system or a sort of "B-test" at top-level table tennis competitions to quantify rule contraventions accurately by taking air samples.

ENEZ and RAE signalled victory in the battle against speedgluing. It was understood relatively quickly that speedglued rackets could be detected simply using a cheap, portable piece of equipment. The objection that compliance with the rule could not be checked was therefore rendered untenable and the speedglue ban was legitimised. Opponents and supporters of the speedglue ban realised that there were monitoring devices that would reveal any attempts a cheating.

However, it soon became apparent that the ITTF's victory over speedgluing was not conclusive. It was only the second set in the battle to free routine table tennis practice of the frequent use of harmful chemical substances. (The first set had been lost by the ITTF when it abandoned its attempt to prohibit speedgluing in 1993).

The third set kicked off when the market responded to the speedglue ban with the introduction of a new opponent for the ITTF: boosters. As mentioned earlier, these contained smaller quantities of solvents, produced a weaker speedglue effect, and could not be so readily detected by the monitoring devices. The first generation of boosters, however, caused the rubbers to expand so strongly that the overall depth of the rubber often significantly exceeded the maximum permitted thickness of 4 mm. Interest in this type of boosters therefore declined sharply. The rubber might not be rejected as a result of the measurements recorded by the ENEZ device, but might be unacceptable anyway because it is too thick. The ITTF won again and the score stood at 2 sets to 1.

The fourth set is now in full swing. It has seen many long duels and is by no means over, even though the ITTF seems to be in the lead.

This fourth set began when the brand owners produced yet another weapon from their arsenal: boosters with even less solvent and

even less impact on the thickness of the rubber. The countermove by the ITTF took the form of zero tolerance. This has resulted in a sharp divide between ITTF and the brand owners, as this summer's exchange of emails has shown - because the ITTF announced its zero tolerance approach without being in possession of a monitoring tool that is generally regarded as fit for the task.

ENEZ had not, of course, been developed for the purposes of monitoring compliance with a new rule prohibiting any form of manipulation of rubbers. ENEZ had been designed to indicate a high solvent content in speedglued rubbers – not to detect tiny concentrations of solvents in ever more sophisticated boosters.

ENEZ – and by this we mean devices available on the market as of 1 September 2008, the date on which the prohibition came into effect – can identify speedgluers and those boosting their rubbers with relatively high solvent content. But players boosting their rubbers with low solvent content and then thoroughly airing their rackets can get the green light, even though they are in contravention of the rule prohibiting manipulation of rubbers.

It has already been explained that the RAE device is more sensitive than ENEZ and produces more precise values, but as yet it is still much too expensive for use in small-scale competitions. What's more, the solvent content in certain boosters/tuners is so low that it almost falls within the tolerance zone that all measurements must have to avoid showing up innocent player' rackets as outside the permitted limits. All rackets contain solvents, since solvents are used to glue together the various wood laminations and also to stick the sponge to the top-sheet. Even where newly-purchased products have been allowed to air, the measurements must have a certain tolerance. If this were not so, then the fact that a racket has been kept for a long period in a sealed carry-case or a protection sheet could still result in a red light from the monitoring devices for players who have used no additives.

As far as a zero tolerance rule for future solvent-free additives is concerned, neither ENEZ nor RAE will be adequate. In order to test this part of the rule, as of today's date, i.e. autumn 2008, it is necessary to conduct equipment manipulation tests in a well-equipped chemical laboratory. It is only in these surroundings that all components of the rubber can be compared with the content of the approved rubber and any possible additives detected. In other words, when the additives do not change the rubber in such a way that is detectable with the naked eye. A rubber that is boosted swells. This changes more than just the thickness. In comparison with an approved, unmanipulated rubber, the distances increase between the pimples that are glued to the sponge – something which is easily detectable.

By displaying such decisiveness – despite all the loud protests from the brand owners and the silent protests of many top players – the ITTF is also taking a risk. The goal is to eliminate any manipulation of rubbers, but at the present time there is no monitoring device that can serve to uphold this policy. The current strategy seems, rather, to be to reduce the permitted level of solvent values to the level that is currently necessary for the manufacture of the racket components, thereby rendering cheating pointless.

The smaller the quantity of solvent that is added to a rubber, the tinier the effect. The difference between that and the latest generation of approved rubbers with integrated speedglue effect becomes ever smaller and is approaching zero. The ITTF hopes that the motivation for players to contravene the rules will diminish in similar manner.

Even if the ITTF wins the fourth set as well, the battle against solvent-free additives still has to be fought before the zero tolerance game can be said to be over. But discussions with the industry have not yet reached that point. At the time of writing this article, we are still playing the fourth set. It is still the boosters with differing solvent contents that present a challenge to the rule forbidding manipulation of rubbers.

By way of summary: the government and the parliament, i.e. the ITTF, has played its last trump-card in this matter without any guarantee that it can win the game. Efforts are still being made to improve the existing monitoring devices and/or to invent new ones that are better suited to the new products on the market.

The stance of the chief opponent, the table tennis industry itself, is a divided one. Some of the actors are of the opinion that a complete ban is the right way forward and are prohibiting their players from using boosters or similar additives. Others are trying their utmost to exploit the loopholes between the rules and the practicalities of policing them. Rubber and racket manufacturers, meanwhile, are working feverishly to develop even better rubbers which will render cheating redundant and, in due course, to find new, environmentally friendly products to replace the solvents currently used in the manufacturing process.

Which leaves the players themselves. When the 1993 speedglue ban was repealed, the players and the industry alike accepted the compromise put forward by the ITTF. The players no longer cheated by ignoring the rule and continuing to use the dangerous glues which were banned but produced a better and more lasting effect. The market sold products that were approved by the ITTF.

And now, given that the ITTF has gone as far as it can, the result depends on every individual involved with table tennis. At the end of the day, the Federation is appealing to the conscience of each individual with questions that can only be answered with 'yes' or 'no': will you face up to your ethical responsibility and accept this ITTF law, which has been issued according to democratic principles? Will you play honestly and also actively promote that approach vis à vis others actively involved in table tennis? Or do you consider yourself to be above a majority decision backed by more than 200 table tennis nations? Are you prepared to give yourself unfair advantages over an honest opponent? Do you want to send the message that it's OK to win through cheating - and in so doing to contribute to the undermining of the authority of the ITTF as the ultimate decision-making body in table tennis?

What will the next form of cheating look like; how will the ITTF rules next be infringed? By throwing the ball directly at the racket when serving? Or through players concealing their service with their body? Or by playing with rubbers that have different characteristics but are the same colour? ■

Photo on p16 provided courtesy of ETTA. Other photos by Steve and Marie Hopkins.